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[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

1. The following Officers became members of the Institution during the month of November :—

Captain C. W. Cottrell-Dormer, late 13th Hussars.
Major A. R. Hoskins, D.S.O., N. Staffordshire Regiment.
Major-General Sir J. G. Dartnell, K.C.B., C.M.G.
Captain W. A. Hamilton, Connaught Rangers.
Major H. T. Brooking, Indian Army.
Lieutenant G. D. Baillie-Hamilton, Royal Garrison Regiment.
Lieut.-Colonel C. Williams, Scots Greys.
Lieutenant H. Musgrave, R.E.
Major R. J. A. Terry, Manchester Regiment.
Captain E. H. Haig, R.E.
Captain R. J. Kentish, Royal Irish Fusiliers.
Lieutenant E. C. Packe, Royal Fusiliers.
Lieut.-Colonel F. F. Hill, D.S.O., Royal Irish Fusiliers.
Captain A. C. H. Dean, R.G.A.
Major G. F. MacMunn, D.S.O., R.F.A.
Lieutenant H. E. Reinhold, Indian Army.
Lieut.-Colonel S. Cargill, late 55th Regiment.
Lieutenant A. W. Macarthur-Onslow, 16th Lancers.
Captain T. S. Lambert, East Lancashire Regiment.
Lieutenant R. G. B. N. Hyslop, Dorsetshire Regiment.
Lieutenant H. E. W. Iremonger, R.M.A.
Captain D. H. A. Dick, Royal Scots Fusiliers.
Lieut.-Colonel H. S. Mayhew, Border Regiment.
Lieut.-Colonel A. G. Hunter-Weston, D.S.O., R.E.
Captain F. H. Pellew, West Yorkshire Regiment.
Major T. B. Phillips, late 13th Hussars.
Captain E. J. Pomeroy, West India Regiment.
Lieutenant C. M. Staveley, R.N.
Lieut.-Colonel W. Huskisson, R.E.
(No Officers of the Militia, Yeomanry, or Volunteers have joined during the month.)

2. The two special naval and military committees appointed to ascertain in what way or ways the Institution may become of greater usefulness to the officers of the Navy and Army, have issued their reports to the Council. They will be made known in due course.

3. Miss Ethel McCaul, who was commissioned by Her Majesty the Queen to visit the hospitals of the Japanese Red Cross Society, has kindly lent for exhibition in the Museum a collection of clothing, boots, equipment, etc., of a soldier of the Japanese Imperial Guard. They were presented to her by General Térauchi, of the Japanese Army. She has also lent samples of rations and forage, and the stretchers as used by the Japanese Medical Corps. A further description of these articles will be found in the Military Notes.

4. The following exhibits have been added to the Museum :—

a. Three Nelson Memorial Bowls and two Nelson Memorial Mugs, made in about the year 1802; they are very fine specimens. Given by Walter Child, Esq.

b. A collection of chain mail. Given by R. H. Wood, Esq., of Sidmouth.

c. A collection of relics of His Majesty King Charles I. Lent by P. Berney-Ficklin, Esq., of Norfolk.

5. The collection of models of galleys, junks, and war canoes, which has been in the Museum for many years, and which was falling into a state of disrepair, has been thoroughly overhauled, painted, and varnished by Attendant Simpson, and is now in first-rate order.

6. The whole of the military cases of relics have been re-arranged, catalogued, and described.

7. On the evening of Wednesday, November 16th, the Society of Engineers, by permission of the Council of the Institution, held their Jubilee Conversazione in the Museum. It may interest recognised Societies and Institutions to know that the Museum is available for receptions and conversaziones. Applications should be made to the Secretary. Secretaries of Naval and Military Societies and Institutions are informed that the Theatre and a large room are available for meetings. The charge for the rooms is a nominal one.

8. A specimen of an English long-bow is required for the Museum. The Secretary would be glad to hear from any member who may be in possession of one who would be willing to contribute it.

THE STRATEGIC FEATURES OF THE OPERATIONS IN MANCHURIA, AS ILLUSTRATED BY EUROPEAN AND AMERICAN CAMPAIGNS.[1]

By T. MILLER MAGUIRE, M.A., LL.D., Inner Temple, Barrister-at-Law.

Thursday, 10th November, 1904.

Major-General Sir G. H. MARSHALL, K.C.B., R.A., in the Chair.

I FEEL a certain amount of hesitancy in being called upon to speak in connection with one of the most important crises in the whole of the history of my time; but I feel more than usually nervous and embarrassed on rising to speak to-day before an audience largely composed of soldiers, after reading in my paper this morning what seems to me the somewhat extraordinary statement that "War is the most futile and ferocious of human follies." If I believed that statement in its entirety I should suggest that the best thing you all could do would be to immediately turn your swords into ploughshares, your spears into pruning-hooks, and your dynamite into sugar-candy, and be done with the whole art and study of war at the Royal United Service Institution. The statement is certainly a debateable one, for if true it abolishes strategy, in a phrase, and turns all the heroes of our race and of every other race into contempt *ab initio*.

So far from war being the most futile of human follies, there are many things much more futile and much more foolish and much more injurious to States. War is a stern necessity, it is a painful necessity, it is a terrible necessity, it is a costly necessity. No nation ever remains after a great war what it was before the war. It changes radically for better or worse. But a far worse thing than war is luxury; a far worse thing than war is effeminacy; a far worse thing than war is political chicanery; and a far worse thing than war is any neglect of the first principles of sociology, on which the future of our race depends.

[1] This lecture was delivered *ex tempore*, and illustrated by large wall maps, but it can be easily followed by the aid of any good atlas and the small sketch maps appended.

Let any gentleman here stand up and tell me that the whole history of civilisation, ancient and modern, is one series of ferocious futilities. Was it futile and ferocious for Cromwell to fight the Cavaliers? If so, was it futile and ferocious for the Cavaliers to fight Cromwell? Can Gustavus Adolphus, Turenne, Cæsar, Washington, or Pitt be all classed as fools? Was it futile and ferocious for us to go and plant the standard of St. George by the banks of the Rhine and the Danube in the time of Marlborough in defence of the Balance of Power? Wherein was the ferocity in colonising Canada and saving India from barbarism? There are members of the United States of America here. Is there a single American who believes that the Federals in their long war between Washington and Richmond, and along the banks of the Mississippi were not the benefactors of America instead of ferocious and futile fools? Was not their Civil War a glorious and most beneficial epoch? Was our resistance to Napoleon futile and ferocious? Were the Crusades futile? War is a necessity. In all ages the best brains of the community have been employed in connection with it, and there is not one triumph of humanity, religious, social, or with regard to liberty, that has not employed the sword for the completion of its purpose.

I will now turn from this debateable statement to a higher theme:—"The Strategic Features of the Operations in Manchuria, as illustrated by European and American Campaigns."

The very first point that appears to me to be the greatest lesson is only another confirmation of the wisdom of the ages. The most certain oracles of time have been illustrated in our own generation again and again. They have been illustrated in connection with the great Civil War in America; that is a little before my period of personal observation, but I see officers before me who could repeat every phase of it off by heart — officers of both Services. They have been strikingly illustrated by the collapse of France in the year 1870-1871. I refer to this now at the beginning because I have to illustrate the strategy in Manchuria by the strategy of the campaigns in Europe and America. They have been further illustrated in connection with the Turkish campaign, 1877-8, and strikingly in connection with our recent campaign in South Africa, to which, because it leads to political and other disagreeable discussions, I will not refer from a military point of view, and of course, the less politicians say about it the better—I mean to say, the better for the politicians.

Now, what are these principles again illustrated in Manchuria? The first is the old Roman proverb, that if you wish for peace you are to prepare for war; but *a fortiori*, if you are about to be involved in war you are to prepare for war. The preparation for war is the first and second and third duty of a State, as long as human beings come to life, generation after generation, with their present ideals and limitations. It admits of no question:—*Si vis pacem, para bellum; si vis commercium, para bellum; si vis gloriam, para bellum.* If you wish even the prolonged existence of your community, prepare for war. Now, do not you see in Manchuria that the principles of the oracles of time set forth in 1870 by the banks of the Rhine have been exemplified by the banks of the Yalu and the Sha-ho? Here is a great community, Russia, with large pecuniary

and with perfectly prodigious and inexhaustible material resources, and with long and honourable military traditions. There is some doubt about the population; but at the least computation I suppose Russia has 150,000,000, and at the very most, I take it, Japan has 50,000,000 souls; at any rate, about three to one. Now, how does it come to pass that this new military Power can challenge a Power like Russia, with such a long history of military distinction, and with a reputation for the absolute invincibility of its troops on the field of battle? What is the cause of that? Is it because the Japanese man in the year 1900 was by nature a very much bigger and better and stronger man, with bigger brain power than the Russian man? Certainly not. Why? Because the Japanese prepared for war in time; they made Wisdom their Goddess; they eschewed selfishness and folly. They recognised the secret of national greatness for an island. What is the secret of national greatness for an island? Naval invulnerability. They recognised the secret of national expansion for an island. What is the secret of national expansion for an island? Military expansibility. They recognised these two facts; they recognised what the American general said: that no more brutal foolery or ferocious folly could be imagined than for a nation to deliberately send forth across the seas or across the frontier the prime of its youth, inferior in intellectual equipment, inferior in physical development, in *matériel*, purchasable things, to its death. Do you want an example of ferocious folly? It is ferocious folly in its quintessence, for the rulers of a State to get the best manhood of the State, to give it inferior guns, inferior horses, inferior medical supplies, old curiosities, Slade-Wallace equipments, inferior training and for the lowest purposes of paltry economy to send it forth like sheep to the slaughter. The most certain oracle of time is that the nation which acts in this fashion will decay, will be defeated, will perish, and the nation that acts as the Japanese have done for the last thirty years will probably thrive and prosper. This is the secret of war, and that is the first oracle of time. A philosophical humanitarian, otherwise a pompous silly crudity of a person, would have had us believe at the time of the Hague Convention that these theories were out of place at the close of the 19th century. They have been strikingly confirmed in one sense in 1899 by ourselves, and in another in 1904 by the Japanese.

For overflowing hives of philosophic honey, search the Essays of Lord Bacon, one of the wisest of mankind. He does not pretend in his Essays to be original in the slightest degree on these matters; he merely in his Essays condenses the wisdom of the past. His Essays are full of references to the leaders of Greek and Roman thought, whose principles were precisely the same as were those of the highly-educated and all-successful leaders of the chivalry of Islam. When he talks about the command of the sea, he says, quoting Cicero, that the opinion of Pompey was merely that of Thucydides, that "the command of the sea is an epitome of monarchy." *Qui mari potitur eum rerum potiri.* The Japanese sent students over to England, they sent students all over the world to study maritime affairs and mechanical improvements and the arts and policy of the West, and they also came to the conclusion that the command of the sea was an epitome of monarchy, and accordingly they set about the defence of their

own islands, so as to become invulnerable in their islands; and, moreover, having command of the sea, they were immediately able to take the initiative across the sea, first against China, 1894, and against Russia in 1904.

Here is another oracle of time: "No nations which do not directly profess arms may look to have greatness fall into their mouths" (*Bacon*). I strongly advise you, therefore, to trust not to any contingent remainders of arbitration treaties, but to a proper Navy and a proper Army. The weak will always be mulcted in arbitrations, which are screens for nerveless policy. Would the United States submit the Secession question or the Monroe Doctrine to Western European arbitrators? I trow not.

It means much when a nation does not make the study of arms its principal honour. If a nation cannot thrive at all without the study of arms, it seems reasonable to expect them to be studied well. You may make a mistake in other matters with comparative impunity, but you cannot make a mistake on a battle-field without serious consequences. The most unskilful dentist will only pull out three or four sound teeth in a day, but an unskilful soldier risks thousands of invaluable lives in half an hour. When you have a great battle, and ten thousand men are in the horrors of pain in the night, the torture caused by the lack of medical appliances, ambulances, and all needful medical aid are more widespread and intense than all the sufferings of all the sick people in this vast metropolis in a week. Therefore, the careful study of all things pertaining to arms, if you are going to have war at all, manifestly ought to be the principal honour, study, and occupation of a State, especially a State such as Japan, and of a State which is in exactly the same position, an insular State on the other side of the world, a State which holds the same position with regard to Europe that Japan holds with regard to Asia—the United Kingdom, Great Britain and Ireland. Until our people are thoroughly impregnated with that truth they ought, in the fall of Venice and other maritime communities, to think of "their own, despite their watery wall." Football and cricket won't save us; games did not frighten or defeat Napoleon, but our Navy crushed his maritime power, and our Army in Spain was "the ulcer which ruined him."

Here is another of the most certain oracles of time; it is the statement of a most distinguished philosopher as well as soldier:—"The brave and wise man's toil is made the sport of political fools" (*Napier*). "It never troubleth the wolf how many the sheep be" (*Bacon*). Disorganised, untrained numbers never won victories. That was seen by our own performances in France in the Middle Ages, when our infantry was the best in Europe; it was seen even in naval battles. In the battle of Trafalgar the numbers of vessels were on the side of the enemy; the numbers and armament of the British were not equal to those of the French and Spanish forces. In the latter battles of the campaigns in France in 1870-1871 the improvised legions of Gambetta were constantly beaten by inferior German numbers. In every one of the big battles, after the battle of Sedan, the superiority of force was on the side of the French. They were not sheep, nor were the Germans

wolves, but they were improvised, unorganised masses of men, and the invaders composed an organised Army, part of a nation in arms, and the result was disastrous to the unprepared.

Now surely in these things false economy is madness. "In war," said Lord Chatham, "expense is true economy." Do you want a certain force for the purpose of protection of your shores, for the purpose of protection of your commerce, for the purpose of talking with your enemy in the gate?—not waiting for him to enter yours, but going to his gate—not defence, but the defensive offensive. Are you in earnest, or are you trifling? It is not the slightest use to have an inefficient Army, not the least; it is a danger to you. Have military forces equal to your requirements, or be prepared to lose your Empire, trade, honour. This is another of the most certain oracles of time. Do you want an Army to protect this country, and to sally forth from your little isles to protect India, to maintain your position in Africa, to protect your colonists in the other isles of the sea? Cannot you estimate what kind of an Army you require? If you want to make it fit for its duties and start it on its legs again, as it was 100 years ago, fit to cope even in Spain with the great Napoleon, do what the Japanese did, spare nothing whatever with regard to any expense on numbers, brains, drill, armament, food, or equipments. Then go and fight, and not till then. Organise your Army properly betimes, according to the most scientific methods, otherwise your strategy will be a broken reed. It is a waste of money having a large mass of men that is not organised. Then have mobilisation schemes and a system of moving your troops wherever required rapidly and methodically, or Strategy will turn against you as it turned against Austria, 1866, and France, 1870, no matter how numerous and well equipped your soldiers may be. The Japanese for years before 1904 complied heart and soul with all the conditions which I have laid down, and hence their little nation could take up the huge Russian gauntlet in Manchuria.

But there is another word of warning. With regard to foreign countries, I wish our people would make up their mind once and for all to take a calm, judicious attitude from start to finish, otherwise the lessons of the war will not be borne home to them; there will be no lessons. Now most of the criticisms of this war on all points have been simply futile from start to finish, the result of prejudice and hurry. I lectured on this subject here last March; I referred to some of the leading conditions which must certainly arise, they were not merely my views, had they been mine only they would be of no significance, but they were a compendium of the experience of all ages. Yet I noticed several leading articles in April and May in which it was seriously asserted that Russia would soon cease to fight by reason of anarchy and financial distress. As the wish or prejudice or hasty presumption of the writer dictated, so strategic ruin was apportioned to either combatant forthwith. If one half of what was thus written had been true, all the Russian and Japanese soldiers would now be dead of starvation, and both nations would be bankrupt. Yet they still fight, and there has been no revolution. A great State does not readily go to pieces. The degenerate arts of peace ruin States. The practice of the arts of war never ruined States. No mercy is allotted to revolutionists in war time; domestic discontent

never prevented a war or stopped a great war. During the war between the French Revolutionary Government and Europe, including England, between the years 1793 and 1796, France was in chaos, and the heads of politicians were falling under the guillotine; La Vendée was in open revolt; terrible massacres took place at Toulon and other places. Enemies invaded France, our vessels hovered over the French coast abetting insurgents, and what was the result? France started in the very midst of these civic disturbances a career of military glory without compare since the time of the Romans. Again, take the British at the same time. We had then about 17,000,000 people, and of those a larger proportion than now were Irish. The majority of these were preparing to rebel, many were in arms, and the labouring classes in England were in a state of violent discontent and frequent acute distress. Every now and again the King would be shot at on his way to a theatre. The most drastic measures and repressive Acts of Parliament were passed. Did the British give up the war? Not they! When the Irish took upon themselves to revolt, Ireland was invaded by the French. Did the English give up the war? The very same year as the rebellion in Ireland they proceeded to win the Battle of the Nile. They did not care what Generals Hoche or Humbert did in Ireland; they would go on with the war. They did not hesitate to challenge Napoleon at the date of Emmett's rebellion. Why? Because British mothers gave birth to men, and I suppose Japanese and Russian mothers are capable of doing the same. Ballinamuck finished Humbert. I am only bringing back well-known facts to your memory. The point is, that from 1793 to 1798, and again 1809-1815, there were constant civic strife, misery, and riots in this country, and yet the war went on.

In 1870 the Empire fell in France; there was a new Government after Sedan; there was, of course, much discontent, religious and civil. Did France give up? People have written to the newspapers and said that Russia was certain to give up because there would be civic discord. I am trying to show you the lesson of history, that there is something in a State greater and more permanent than the sayings of a particular politician or the whines of a particular set of individuals, and that no State will ruin its destiny by a humiliating surrender; indeed, civil discontent may well prolong a foreign war.

You need not imagine for one moment that the Russians will give up without further desperate struggles; and if Russia gives up it will be not because of civic strife.

Another commonplace of trivial folly is that financial difficulties will paralyse strategy and cause the cessation of war. Might I ask for one case?

I challenge anyone to produce a case. Will any lawyer, or soldier, or historian tell me a case in which mere lack of money caused the cessation of a great war, founded on principles of religion, or race, or even territorial expansion? I do not know one. In the year 1795—the year before Napoleon started his wonderful career in Italy—such was the state of finances in France that one required paper francs to the nominal value of four hundred to buy a pound of butter. Assignats and mandats were depreciated to a degree. But

the war went on. The French found money and food and works of art and glory by the banks of the Rhine, the Danube, and the Po. So in the United States. What about the fall in the value of greenbacks? What about the financial distress of the Federals, 1862-3? Yet they spent £1,000,000,000 on a war of principle in four years, even as we spent £500,000,000 on war after the Bank Restriction Act of 1797 forbad any exchange of gold for notes. If Russia is beaten by Japan, she will be beaten by meddling politicians and fools, such as well-nigh ruined us in 1807 and 1899, or be beaten by main force, or by a superior application of strategical and tactical brain power. She will not fail merely because there will be a revolution, or because of great financial depression on the banks of the Neva or Moskwa. What was the financial condition of the Confederates in 1862? Yet they fought on till 1865. Had Attila or Jenghis Khan or Timurlane or Gustavus Adolphus the credit of the Rothschilds? As Solon said to Crœsus, "He who has better iron will take all your gold."

Command of the sea and its effects have been powerfully displayed by the Japanese. Had the Russians been as powerful by sea as they expected to be, the history of the war would be very different indeed; the Japanese would now be even worse hampered than were the Confederates in 1863.

Observe the effect of a Peninsula on the strategy of a sea Power, whether the Peninsula be European or Asiatic. You have a map of Europe; look at the Balkan Peninsula, and consider how Russia was hampered by lack of sea power in 1877-8. The Italian Peninsula—the Spanish Peninsula will also do for my purposes. The Peninsular Power that has command of the sea in the Mediterranean unquestionably can preserve the main body of its territory absolutely intact. Thus the Greeks, the Romans, the Turks, and the Spanish in turn ruled the waves. When the Romans lost command of the seas for a while, the Carthaginians did as they pleased; when the Romans won it, the masterful genius of Hannibal, when he managed to pass the Alps into Italy, could not ruin Rome.

When the theatre of operations is a Peninsula, the effect of naval power is twofold. I have no passion or prejudice in this matter at all. Suppose the Russians beat the Japanese—I do not think they will—but suppose they beat them on the Sha-Ho and made a strategic counter-stroke, and advanced from the defensive to the offensive, and got past the Yalu and got into Korea, and the Japanese had still command of the sea. The farther the Russians got down into Korea the more uncertain their position would become; for instance, take Gensan, Chemulpo, etc. As the Russians went down towards the foot of the Peninsula they would be dragging at each move a lengthening chain. For the benefit of the ladies I will demonstrate the principles of lines of communication, by which Armies live, on the board; but these principles are the foundation of the art of war, and quite familiar to my audience. An Army, as a rule, lives from behind. As the Russians advanced down Korea, their flanks would be exposed to raids from the sea. The enemy could draw them down to the end of the Peninsula, and then check them, and turn on them to drive them back, and exhaust them, and cut their lines of supply. Each army corps would eat out nine miles by five in an ordinary rich country in one day; therefore, each division has to bring up five miles of wagons.

(The German Army has wagons enough to reach the whole way from the Elbe to Russia, if it were to mobilise.) Consequently, the line of communications is a vital matter. When a Continental Power goes into a Peninsula, and the people are hostile, as they were in the Spanish Peninsula to the French, or the people are merely non-martial races—a kind of contemplative philosophers absorbed in the ease of decadence—then the sea Power is perpetually on the flank of the invading Power threatening it. That strategy has been admirably illustrated by the Japanese. In describing the Japanese strategy till they crossed the Yalu and gained New-chwang, I am merely repeating the lessons of our war against Napoleon and his marshals in the Iberian Peninsula. They constantly threatened the Russian communications while securing their own. Therefore, when you look at a map and want to study strategy, and you assume sea power, you will find in all history that the sea Power will invariably get at the Peninsula if it can, or the Peninsular Power will draw the invading Continental Power down towards the apex of the Peninsula, cover its own lines on each side, threaten the enemy's lines, and drive him to retreat. Thus Wellington protracted the war in Portugal and Spain from 1808 till 1813.

But the advantage of a Peninsula to a sea Power soon begins to diminish, if it advances from the Peninsula into the heart of the continent. Then the conditions become equal again, and with each day's march the balance of the advantage turns more and more in favour of the land Power.

Look at your map of Portugal and Spain. The British had absolute command of the sea in 1808; the French got to Lisbon; what did the English do? They immediately sent a force to Figueras Bay from Cork, got between Junot and his base at Vimeira, and caused him to capitulate at Cintra. Napoleon soon came into Spain himself. He came down to Madrid. Sir John Moore immediately advanced to Salamanca and across the Douro to threaten his line. Napoleon, crossing the Guadarama Range, interposed between him and Lisbon, but he escaped to a new sea base at Corunna. A Power which commands the sea can take as much or as little of the war in a Peninsula as it pleases, come and go as it pleases, whereas the continental Power coming into the Peninsula is in constant danger. Napoleon was occupied with other matters along the Danube for a while, but a serious invasion again occurred in 1810. He sent Masséna, who took the frontier fortress of Ciudad Rodrigo, and went into Portugal. Wellington retired over sierra and river, skilfully using a rear-guard, and fighting at the Coa, Busaco, and other places, till he reached the impregnable lines of Torres Vedras. There the British soon turned their defensive into the offensive; they took the frontier fortresses, 1812; they pushed ahead; they advanced in 1813 to the Pyrenees. But they were face to face with San Sebastian and Pampeluna fortresses, one of which at least must be taken. Now, then, compare our advance against France with the Japanese operations. The British had not enough men to mask San Sebastian and Pampeluna and invade France; accordingly they stopped; they had to wait until they took San Sebastian. Then they passed the mountains and invaded France, but as they were going on to France they had another sea base at Bayonne. Is not this like the situation at Port Arthur and New-chwang? The British were strategically safe—their

flank was to the sea, and they were fed from ports. But Soult now retreated into the heart of the country towards Toulouse, pausing and fighting severe detaining battles—between Bayonne-Toulouse. The predicament of the invaders was becoming serious, and Soult might, after evacuating Toulouse, have drawn them on for hundreds of miles, and Wellington would have been at his wits' end. Soult was a prototype of Kuropatkin, as was the Archduke Charles in his retirement in 1796. It took Wellington from August to April to get from San Sebastian to Toulouse. Now compare all this and the passage of the Pyrenees with the Japanese operations. Having made themselves masters of Korea, they crossed the river obstacle—the Yalu—and won a battle on its banks, even as the British won Vitoria close to the River Ebro. It is quite a common thing in history for the defenders to allow the invader or the assailant to cross a river and to stand on their own side of the river; it happened on the passage of the Danube, and at many other streams of note. Then another obstacle generally presents itself in the shape of a range of mountains. Just as the Italians moving into Switzerland and into Gaul in the time of the Romans had to pass the Alps, so the Japanese had to pass a range of mountains—a branch of the Shan Alin. The British in 1813 were obliged to pass the Western Pyrenees, of course, in several columns by various defiles, and the French fought well against them at the passes. It is exactly the same, whether it is the South of France or the South of Switzerland or the Balkans. The range must be passed, and, indeed, the English had to pass the Himalayas to get into Tibet; on the south is the Ganges, even as the Po is south of the Alps. The Indus is parallel to the Afghan mountains. The enemy has now a good chance of victory, or at least of a skilful use of detaining forces. If Kuropatkin had harkened to the lessons of history—I believe it is not his fault—he would have let Port Arthur go—manifestly it was well able to take care of itself for a few months. Soult made an attempt to relieve San Sebastian; but he did not compromise himself very much; he kept his communications behind him safe. The thing is to draw the enemy on into the heart of the country, and then turn on them and ruin them if you can. Kuropatkin has turned, but he has not ruined the Japanese.

We now come to another principle, the principle of converging lines and their application. Now, look at the little map of Virginia. The Federals were advancing on converging lines into the Shenandoah Valley from Western Virginia, and into Eastern Virginia from the Potomac and from the sea. Hence their columns were separated on exterior lines, and Lee and Jackson and Magruder and Anderson, acting on interior lines, beat them in detail again and again in 1862 and 1863.

It does not make the least difference whether Alexander the Great is fighting against the Persians, or Cæsar is fighting against Gauls, or the Black Prince is fighting against Du Guesclin, or whether Turenne or Frederick, or Marlborough or Napoleon, or Lee or Osman Pacha be the hero; the principles of strategy are exactly the same. It was thought by some red-tape European soldiers that mere tyros were about to make ridiculous campaigns in Virginia, and it was said that the Federal and Confederate soldiers would know nothing about

the art of war. But these same soldiers happened to have had the very best college at that time in the world—West Point—and a great number of the officers were so familiar with military history that in discussing the plan of campaign they used to say: "Shall I do as Marlborough did, or as Napoleon did, or as Wellington did?" knowing that the other officers, their superior or inferior officers, as the case might be, thoroughly understood what they meant, because each knew that the other knew perfectly the operations of Napoleon or Wellington described in history. So it came to pass that every one of the principles of the Napoleonic wars was put into practice in America. But the Federal leaders remembered another striking incident in history; they remembered the command of the sea, and they had very good reason. The thirteen colonies won their independence, not by any great strategy on land, not by any great tactical superiority over the British in the field, because they had neither, nor did they pretend to have. They got independence because the British Fleet for a short period lost command of the sea. If the gallant admirals present disagree with me, I know they will slash me to bits at the discussion. But I assert they lost command of the sea for a few months. The gallant admiral (Sir E. Fremantle) says Yes. That was in 1781, and it was all the fault of Admiral Graves—it was either the fault of the Government or Admiral Graves—I fancy it was the Government; the charlatans of party strife have cost many a loss of prestige and holocausts of men, and if they don't improve soon they will cost us all our Empire. The Fleet was not able to cope with the situation for a few weeks, and in those few weeks Cornwallis had surrendered Yorktown.

There were distinguished generals in the United States of America on both sides of their own Civil War, a far fiercer struggle than their War of Independence—the Federals and the Confederates; they comprehended the value of sea power. Look at the little map of Virginia. Do you see Washington and Richmond? Do you see Chesapeake Reach on my right? Then you see broad and navigable rivers coming into the sea; you see the railway lines of communication from Washington, Gordonsville, and Charlottesville to Richmond, and lines of communication by Fredericksburg to Richmond. All through the war the Federals, once the little "Merrimac," ironclad gun-boat, was disposed of, had absolute command of the sea, and accordingly they not only blockaded all the ports of the Confederates, not only prevented them selling any of their cotton in Lancashire—so far-reaching are the effects of the futile foolery called war—but they sent expeditions up into the very heart of the country; they sent expeditions up the Mississippi, which enabled Sherman to traverse Georgia in due time; they sent up expeditions to Richmond. They were always on the flank of any invasion of Washington from Richmond northwards, the same as the English in the Peninsula were always on the flank of any invasion once they had possession of Portugal, from the south of Spain to the Pyrenees, and from the Pyrenees southward to Lisbon. "He who hath command of the sea can take as little or as much of the war as he pleases"—in Virginia, Asia Minor, in India, in Manchuria. When McClellan failed to get to Richmond in 1862, and was cut off from his

line of communication at Whitehouse, on the York River, he immediately changed his communications to Harrison's Landing, imitating Sir J. Moore. So we have these points established again in the American Civil War: change of base and threatening hostile flanks, and feeding one's own Army by a flank by means of sea power.

We now come to another strategic principle: dislodging an enemy by repeated threats against his positions and his line of supply. This has been the recent aim of the Japanese against Kuropatkin. The French would gladly have done this, 1870-1871, and cut the Paris to Nancy railway line, but the Germans had such an enormous host, and they were so ready and well equipped, well fed and well handled, that they covered the whole railway. But the distance from Strassburg to Paris was short compared with the distance from the Mississippi to Savannah or the Manchurian distances. (See the sketch map of Manchuria and the sketch map of France.) It was only 250 miles from Paris to the Rhine, but even those 250 miles were such a serious matter that the Germans had to put 150,000 troops along that line, independent of their field armies south and north thereof. And you remember well enough, such of you as were sent, for philosophical, humanitarian purposes, to South Africa, the long line of communications, longer, even, than Kuropatkin's or the Germans'. The line of communication between Cape Town and Pretoria is nearly 1,000 miles in length, and that is a good deal longer than the lines of communications of most Armies. Of course, the longest in modern wars, in a way, was Napoleon's between Paris and Moscow—1,500 miles—in 1812; but then he had allied States half the way, as long as he was successful; they turned on him in 1813. He really only had about 600 miles of communications, from the frontier of Prussia to Moscow. All through history, when there is only one road or rail, or even two roads or rails or a narrow line of operations, the supply, the food of the Army is a matter of vital importance. In the presence of ladies I will not quote the exact words, but Armies march on other organs than their legs. The American colonel, Wagner, lecturing at West Point, a short time ago, sums up the art of war more concisely than most lecturers. He says the art of war is just simply three things:—*a*. That soldiers must get plenty of food, like other men. *b*. That not only must they get plenty for their own bodies, but they carry with them deadly weapons which exhaust an enormous amount of material, and they must get a constant supply. Very often it takes as much lead as a man's weight to kill a man. They must keep a constant supply of replenishment, repairs, and everything else needful for these weapons. Then they use hordes of horses, like Mongolian invaders. Napoleon had 150,000 horses when he went into Russia across the Neva; and I think you had 400,000 horses, all told, in Africa, and the horses want food. So you have two points: men and animals, moving cities of 300,000 or 400,000 population, equal to the population of Dublin or Belfast, all to be fed; any interruption of supply for a few days means an appalling disaster. In the American Civil War there were 900,000 men in the field at the same time; in France, in 1871, there were one million men on the German side alone. In the American Civil War there were 300,000 Federals dead in four years. These vast moving cities, moving to

destroy each other, must, in their course, be perpetually fed; and the amount of ammunition required passes belief. Those are two of the leading doctrines of the philosophy of war. And the third is, to use the American colonel's phrase: "That two men will always whip one." Whipping is a more serious matter in war than in the nursery. This phrase implies that the next strategic consideration is concentration of force, superior to that of the enemy, at a vital point. Now, inasmuch as an Army must live by the line of communication, it has always been a great point for the assailants to try and cut the line of communication. The base of the Army, every lady now knows, is the place from which it gets its food, its ammunition, and its recruits, and to which are sent back its sick and wounded. The line of communication is a railway, or road, or river, canal or estuary.

Chattanooga is on the Tennessee, and it was the immediate base of Sherman in a very remarkable campaign in 1862; Atlanta, an important town in Georgia, was the objective. The distance was about 110 miles. Kuropatkin entrenched; so did the Americans under General Johnston. So fond is Professor Wagner of his art that he says it is really a pity Johnston was removed, because everybody engaged in the war would be soon dead. No man can live for ever. Looking at it from that point of view, he says it was a great pity that the Confederate Johnston was retired by his Government, because if he had only remained a little longer he would, with the loss of only some 10,000 men, have left behind some splendid military lessons with regard to detaining operations in war. I would not say anything so heartless as this, but it is said by Wagner, who is an eminent strategist; in fact he is the gentleman who has drawn up magnificent schemes for the invasion of Canada, which I would like you to see. They are interesting to a degree, and I have a very high admiration for him. Now, General Johnston did not want these Federals to get to Atlanta. Accordingly he fought detained battles at different places: Rome, Dalton Reseca, Kenesaw, and so forth. He fortified each position; the woods gave him ample material for fortification. Sherman came opposite him, but Sherman could not dislodge him by front attacks. When he tried to do so the loss was excessive. Sherman accordingly tried turning movements. Instantly Johnston retired, and did the same thing again, whereupon half of Sherman's force marched along about 20 or 30 miles and entrenched opposite Johnston, and the turning movement was repeated by the other half. A front attack or a counter-stroke on the other side was perfectly out of the question; it would be as futile and wasteful as Grant's at Cold Harbour, as, indeed, it has been in some of the later Manchurian operations. Is it not the case that just now the Japanese and Russians are heavily entrenched, not a mile apart in some places? The positions were generally along rivers or near mountain defiles or in woods; but the Tse and Sha and Hun are much easier words than Chickahominy and Rappahannock and Pamunkey, and other American battle-sites. The turning movements of Sherman against Johnston lasted four months; then Atlanta was taken and destroyed, and the formidable, indeed terrible, Sherman, abandoned his line of communications and lived on the country during his next march to the sea at Savannah. There can be no question that some of the British operations in the

Peninsula are, as the French strategist, Vial, says, models of the art of war. Jackson, Sherman, the Russians in 1812, and Kuropatkin have imitated Wellington by way of retirement, and the Japanese threats against the Russian line are only, on a larger scale, a repetition of Wellington's campaign of 1813 against Joseph and Jourdan. The latter were far more successful, and the Frenchmen did not make anything like as good strategic defence or tactical resistance as the Russians have done. The numbers were fewer, but the principles were the same.

Look at any map of the Iberian Peninsula. King Joseph was holding the Douro, looking south, near Valladolid, 1813; Wellington was on the south bank, looking north, near Salamanaca. The French line of communications was by Burgos, Miranda, Vitoria, San Sebastian, Bayonne, with a bad alternative line from Vitoria to Pampeluna. Rivers traversed the path of the British; the country was rough, the roads were bad. The Spanish guerillas hovered over the French line of communication, but could not be trusted either with regard to food supply or to fights in the open. Wellington, with the utmost secrecy, moved Graham, screened by the Tras os Montes round so as to threaten Joseph's road by the Pisuerga and Carrion rivers to Burgos. Joseph retired; Wellington crossed the rivers and went after him; Graham continued his march to the north of Burgos; Joseph abandoned that town and retired, followed by Wellington, to the Ebro; Graham went towards the sources of that river, while Wellington followed Joseph. The latter retired to the Zadora, at Vitoria. But the British line back to Ciudad Rodrigo was now too long, and accordingly Wellington ordered the fleet to make a new base at Santander. This was done, and a glance at the map will show that the British were now fed from their left; they continued a converging movement against Joseph, and as Wellington was attacking the French in front at Vitoria, Graham descended on their right flank, took their wagons and 151 guns, and drove their forces in a disorderly retreat to Pampeluna. Thus Graham and Wellington, like Lee and Jackson at the second battle of Bull's Run in 1862, and like Blucher and Wellington at Waterloo, joined at the decisive moment at a battle to the complete discomfiture of their opponents.

Now notice the resemblance between the importance of the position of San Sebastian when Wellington crossed the Ebro and the importance of the position of Port Arthur when the Japanese crossed the Yalu. Each fortress is on the flank of the main line of operations of the enemy across mountains—the Pyrenees on the way to France and the branches of the Shan Alin on the way into Manchuria. Wellington left Graham to invest and ultimately storm San Sebastian; the Japanese left Nogi's force before Port Arthur. Soult tried to raise the sieges of San Sebastian and Pampeluna, he failed just as the Russians have failed. Then the British entered the defiles of the Pyrenees by Roncesvalles and Maya, just as the Japanese passed by Mo-tien-ling, Ta-lien-ling, and Fiu-chen-ling. Soult for a week made vigorous efforts to stop them, the Russians made feeble efforts to stop the Japanese. The mountains were safely passed in both cases, and in both cases desperate battles on fortified positions on rivers followed— the Bidassoa, Nivelle, Nive, in 1813, and Liao-yang and Sha-ho in 1904. The British Navy continued to cover and aid

the British left—indeed, Wellington said that but for the Navy he could never have conducted this campaign—but while the Japanese Navy is useful at Port Arthur, it cannot cover or abet the advance on either flank north of the Tse—just as the British got involved in new land lines of communication when Soult, instead of retreating north to Bordeaux, retired east by Orthes to Toulouse, 1814. Verily, Napoleon's maxims of war are of universal application, and history repeats itself in the lives of all prominent military leaders, no matter where "they shone or shine, or by the Rubicon or by the Rhine."

Let no one sneer at the Russians for retreating, nor at the Japanese for suspending operations after great and bloody battles. Napoleon, Wellington, Moreau, Turenne, and Gustavus Adolphus all conducted skilful retreats. Strategic pursuits after bloody battles are unusual; the Germans were slow after Wörth, Lee failed to pursue after Fredericksburg and Chancellorsville.

It is much better to retreat towards reserves and the base, especially when the only link is an unreliable railway, than to make an unwise advance, even to save a large fortress. Russian politicians may be bad, but they are not a bit less competent to devise military plans, or a bit more prejudiced, obstinate, or corrupt, or, worse than all, ignorant and foolish, than politicians have been in England, France, or the United States. We must not speak of English politics in this hall; as to them, I refer my audience to the pages of Napier, Alison, and the Elgin Commission. But just consider the case of MacMahon for the wretched fortnight that culminated in the *débâcle* of Sedan. He was in a perfectly good strategic position in Châlons, and could move to Paris, or Orleans, or where he pleased, and in any case seriously hamper the German host, and perhaps prevent the investment of the capital. But for political reasons he was ordered to advance to raise the siege of Metz. He got to Buzancy by August 26th (see sketch map), but the Germans, who had not known where he was, and were in *échelon*, left leading, from Vitry to near Verdun, immediately changed front right, stopped him, threatened his line to Paris, forced him close to the Belgian frontier, defeated him at Beaumont, and captured him and 83,000 men at Sedan. The Russians and Japanese may not be perfect, and some critics are very angry with both for not hurrying up quicker to the slaughter fields, but neither have made such ghastly blunders as this preposterous campaign. So in 1861, 1862, and 1863, indeed, till General Grant took the reins, the politicians at Washington interfered with McClellan, McDowell, Pope, Burnside in turn, and ordered armies about as if they were items of some base Caucus, and as if commissariat and lines of supply were details of "wire pulling"—result, the fruitless loss of 150,000 men and £300,000,000.

Had the advice of General Sherman been taken, Richmond would probably have fallen in 1861, instead of in 1865, and at one-tenth the cost. There is no honest man who does not say that in our own recent history the fatal incapacity of our party "political fiddlers," as Bacon calls them, for being ready for war has spoiled the strategy of our generals, and caused us a scandalous waste of money and a deplorable loss of life, and our Army at this moment is less fit for any important and prolonged struggle against a civilised State than it was in 1809 or in 1854.

If Kuropatkin retired to Mukden or the Amur before attempting a really powerful counterstroke there would be precedents, and no disgrace, and if Kuroki failed completely again and again there would be precedents and no disgrace. The Archduke Charles, in 1796, retired from the Rhine to Ingoldstadt and the Naab, and Jourdan failed completely against him. In 1814, Napoleon retired from the Rhine to Château Thierry, and Nogent and Blücher failed completely against him for months. Public men would understand the fundamental principles underlying the greatness of States and the success of generals more clearly if some of the time spent by clerical anachronisms over Greek aorists and Latin prosody had been spent in perusing the pages of Alison or Gibbon. I do not refer to any elaborate scientific or technical treatises. Alison is perfectly clear and brilliantly interesting, and his topic is the operations on which our people spent £1,000,000,000 and 250,000 lives from 1793 to 1815. Not one Member of Parliament out of twenty could describe the campaigns of Wellington in India, Spain, and Belgium.

As I speak public feeling is strongly excited, indeed, needlessly strained, about the possibilities of another national struggle—I certainly hope there will be no crisis—but I must not further allude to any International problems of the hour which are under consideration.

I have said enough to prove that soldiers act in pursuance of mightier secular forces than brutal ambition or ferocious folly. War is not brought about by soldiers. Literary men and orators have been often far more rash and ferocious than any soldier, and the prolongation and half the horrors and two-thirds of the expense of war are caused by political triflers, game players, and schemers.

Before war breaks out there are many oracles of time that point out certain methods of facilitating the success of the national leaders in battle and of limiting its duration and diminishing its strain and minimising its loss.

After war breaks out the principles of strategy are so simple that, as Von der Goltz says, any ordinary man of business could master them in a few weeks sufficiently to follow the progress of a campaign with absorbing and intelligent interest.

It is also, as my late friend Colonel Henderson said, as General Sherman said, and as Pitt said, an infamy, an outrageous breach of honour and duty, for men entrusted with the destinies of a people to send the fighting men of their State to be slaughtered by their enemies in the field for lack of training, organisation, sufficient numbers, armament, and equipment.

It is a clear proof of national degeneracy when party politicians and paid officials are permitted to devote to games, sports, and, worse still, base partisan chicanery, time which should be spent preparing for crises, which are as inevitable as they are terrible.

We should now be as fit for action as we were in 1804. We must have an invincible Navy, a sound and numerous striking force, and a nation skilled in arms, "a race of military men." Every boy in our isles should be taught that his nation merits and should receive his zealous service, every able-bodied man should be ready to play a useful part in an emergency. The minds and bodies of

our men should be healthy and well trained, and their souls full of intense but prudent patriotism.

If these precautions be not taken, our Empire must fall before two generations pass away.

"This is the moral of all human tales,
'Tis but the same rehearsal of the past,
First Freedom and then Glory, when that fails—
Wealth, Vice, Corruption, Barbarism at last:
And History, with all her volumes vast,
Hath but one page."

FRANCO-GERMAN WAR.—LIST OF ENGAGEMENTS.

Leading Events of the War 1870-71.

July	19	Declaration of War.
Aug.	2	Saarbrucken.
,,	4	Weissenburg.
,,	6	Wörth.
,,	6	Spicheren.
,,	14	Borny-Colombey.
,,	16	Rezonville.
,,	18	Gravelotte.
,,	19	Metz invested.
,,	30	Beaumont.
,,	31	Noisseville.
Sept.	1	Sedan.
,,	19	Paris invested.
,,	28	Strassburg taken.
Oct.	5	Toury.
,,	11	Bavarians in Orleans.
,,	27	Metz taken.
,,	27	Gray.
Nov.	9	Coulmiers.
,,	28	Beaune-la-Rolande.
,,	28	Amiens taken.
Nov.	30	Great Sortie from Paris'
Dec.	2	Fighting along the Loire.
,,	2-4	Orleans re-taken by Germans.
,,	7-8	Beaugency.
,,	23	The Hallue.
Jan.	1	Mézières taken.
,,	2	Bapaume.
,,	4-6	Bombardment of Eastern front of Paris.
,,	9-10	Bombardment continued.
,,	9	Villersexel.
,,	11	Le Mans.
,,	15-17	The Lisaine.
,,	19	St. Quentin.
,,	19	Final Sortie from Paris.
,,	28	Capitulation of Paris.
Feb.	2	Pontarlier.
,,	16	Belfort capitulated.
Mar.	1	Preliminaries of Peace agreed to by National Assembly.

EXPLANATIONS OF THE GENERAL MAP OF OPERATIONS.

Railways worked by the Germans during the War (all provided with telegraphic communication).

Loop line near Metz.

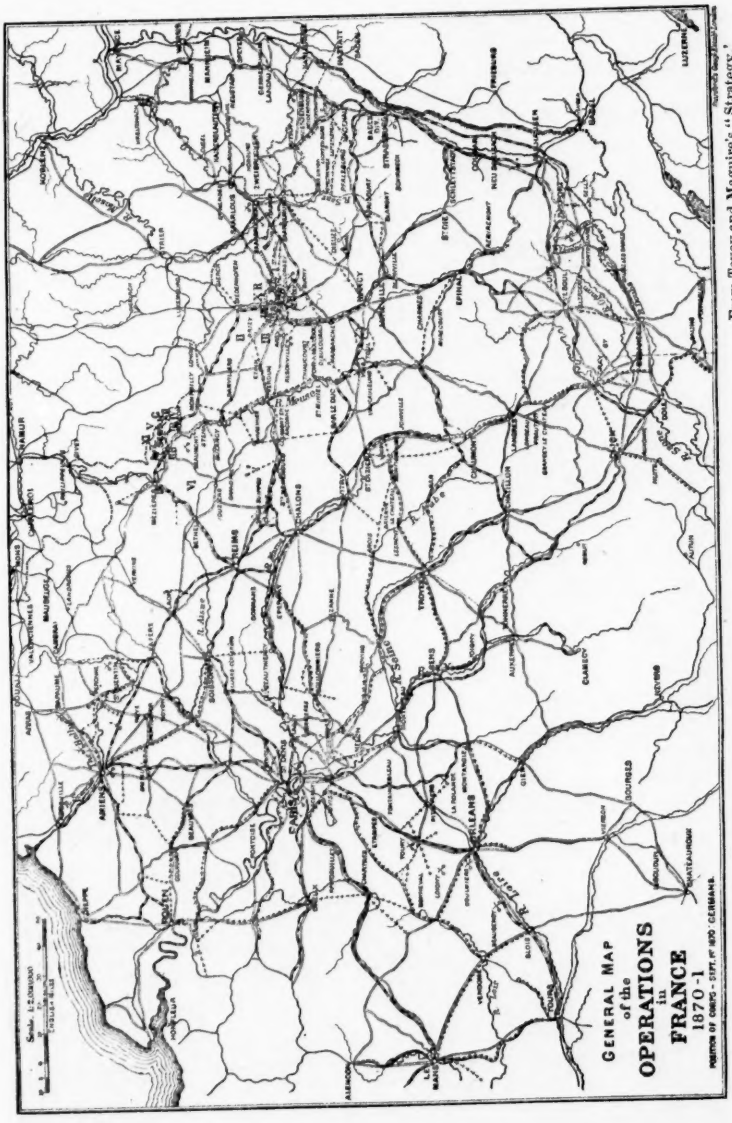
Other railways.

Telegraphic lines other than those on the railways which were opened for use by the Germans.

Site of Engagements.

German Corps VII.

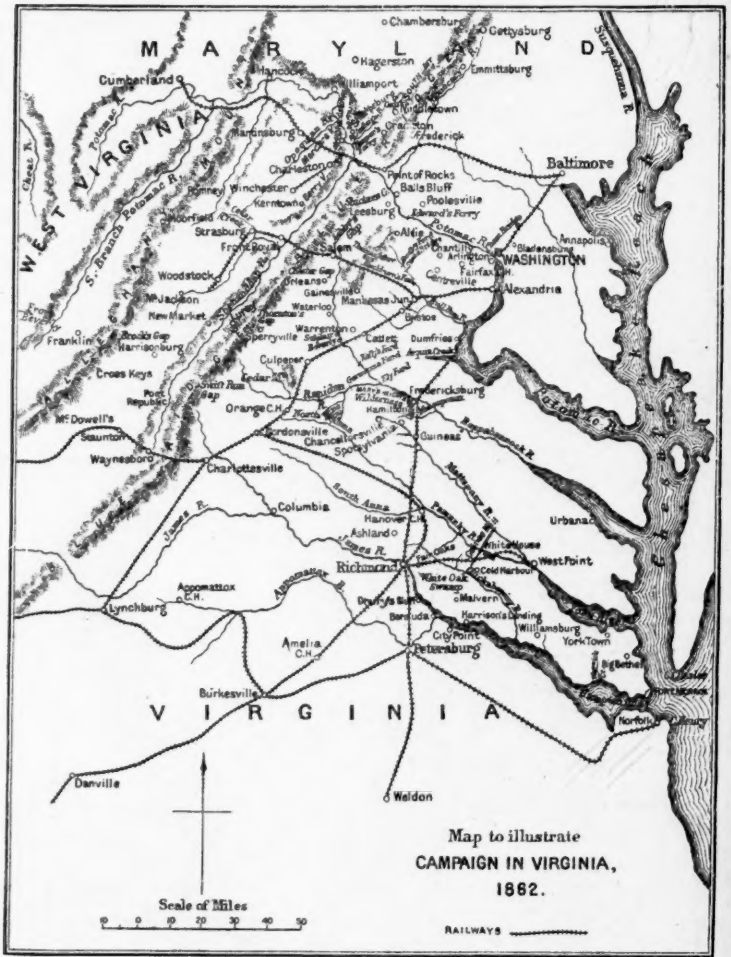
French Corps 7.



From Tovey and Maguire's "Strategy."

ACTIONS IN VIRGINIA.

	1861
Big Bethel	June 10
Rich Mt. and Beverley in West Virginia	June 11 and 13
Blackburn's Ford	July 18
Bull's Run...	July 21
McClellan organises a New Army	August, 1861—March, 1862
Ball's Bluff, near Leesburg	Oct. 21



Stanford's Geog.l Estab.t London.

	1862
The "Monitor" *v.* "Merrimac" in Hampton Roads	March
Confederates evacuate their Works on the Bull's Run	March
McClellan at Fort Monroe	April 4
York Town surrenders	May 3
Williamsburg	May 5

861
ne 10
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ly 21
1862
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862
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ay 3
ay 5

— DISTANCE MAP —

— OF —

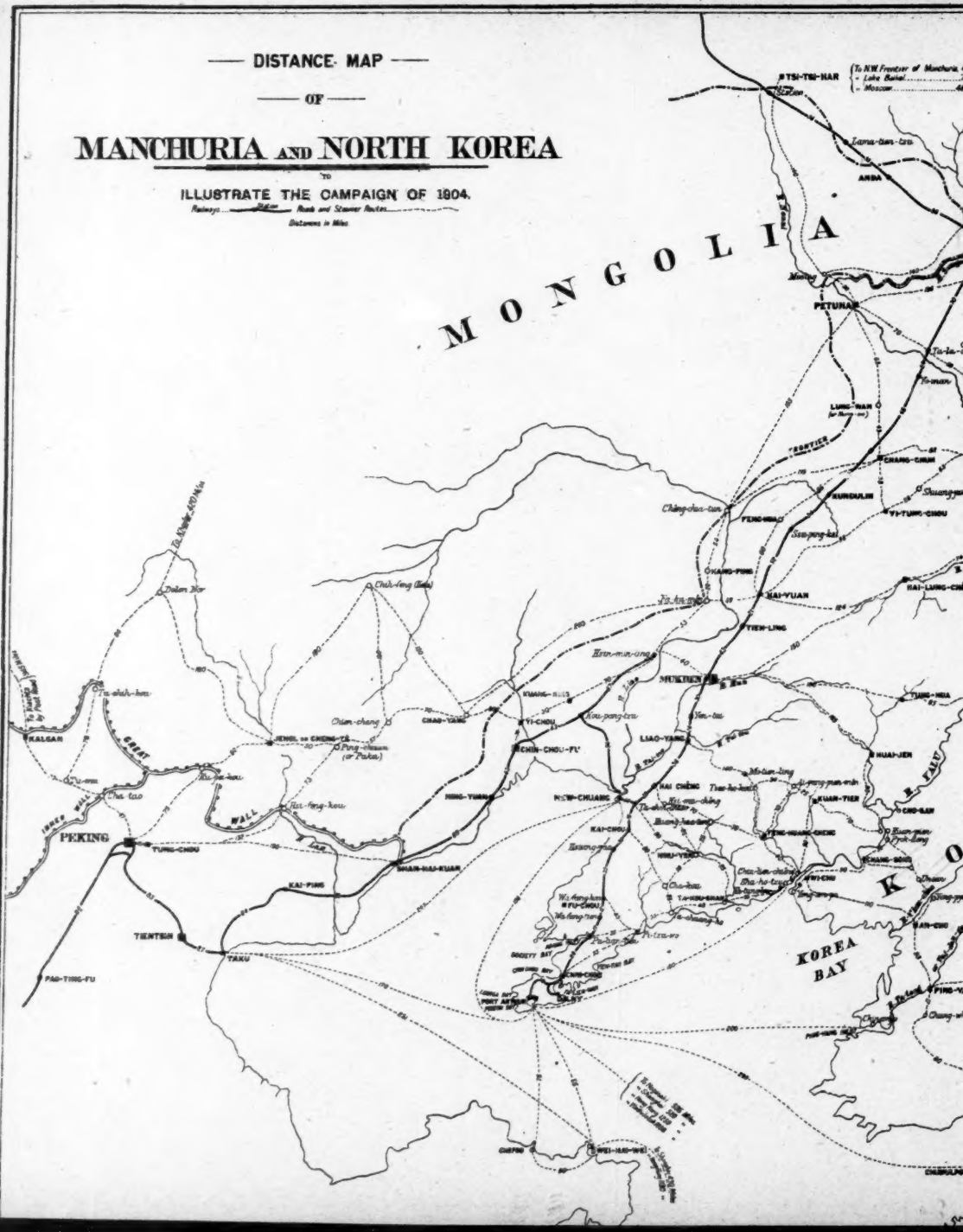
MANCHURIA AND NORTH KOREA

TO

ILLUSTRATE THE CAMPAIGN OF 1904.

Railways ——— Roads and Steamer Routes ———

Distances in Miles



To N.W. Frontier of Manchuria 427 Miles
" Lake Baikal 737 "
" Moscow 4650 "
Lama-tien-tzu
ARDA
Pei-tsao-lin-tzu
HULAN
HARBIN
PIN-CHOU
Mao-shan
Ya-mien-po
Ta-la-chao
Ta-ta-ho-mai
Wa-la-kai
KIRIN
CHANG-CHUN
Shuang-yang-kai
YU-TUNG-CHOU
Kuan-kai
HAI-LUNG-CHENG
Tang-ho-kou
TUNG-HUA
Mao-erh-shan
Pi-chan
HUAI-JEN
Tsak-ai-tang
CHO-SAN
KAPSAN
KIL-CHU
Shang-chai
(Open Port)
FUN-CHUN
Chang-ching
KEN-CHU
LEBSAN
FUNG-HUANG
Chang-sha
SEOUL
CHEMULPO
MUDANJIANG
MAIMACHENG
MUREN
Progranichnaya
SERGHEVKA
Polivianaya
NIKOLSK
VLADIVOSTOK
Nowokievski
PRIMORSK
Spasskaya
USSURI
KHABAROVSK
Sungari R.
Amur R.
Ussuri R.
Tumen R.
Yalu R.
KOREA
KOREA BAY

1862

Norfolk surrenders. "Merrimac" burned ... ... May 5
Hanover Court House taken ... ... May 27
Battle of Fair Oaks ... ... May 31—June 1
Jackson in the Shenandoah Valley ... ... May 8—June 9

McDowell... ... ... May 8 | Winchester ... ... May 25
Front Royal ... ... May 23 | Cross Keys ... ... June 8
Newtown... ... ... May 24 | Port Republic ... ... June 9

McClellan and Porter on the Chickahominy, and retreat to the James ... ... June 25 - July 2

Beaver Dam Creek ... ... June 26 | Glendale ... ... June 30
Gaines Mill ... ... June 27 | Malvern. Harrison's Landing reached ... ... July 1
Savage Station ... ... June 22

Pope in Command North of the Rapidan .. .. July 14

Cedar Mt. ... ... Aug. 9

McClellan retires from Harrison's Landing ... ... Aug. 16
Jackson turns the flank of Pope's Army ... ... Aug. 25—Sept. 2

Bristoe ... ... Aug. 26 | Bull's Run ... ... Aug. 30
Gainesville ... ... Aug. 28 | Chantilly ... ... Sept. 1
Groveton ... ... Aug. 29 |

McClellan saves Washington ... ... Sept. 4
Confederates invade Maryland ... ... Sept. 5 - Sept. 22

Sharpsburg (on the Antietam) ... ... Sept. 17

Confederates retire to Virginia ... ... Sept. 22
Stuart's raid into Pennsylvania ... ... Oct. 10—Oct. 13
Battles of Fredericksburg ... ... Dec. 10—Dec. 15

1863

Battle of Chancellorsville ... . April 28—May 5
Lee invades Maryland and Pennsylvania ... ... June 14—July 14

Gettysburg ... ... July 1, 2, 3

Mine Run ... ... Nov. 27—Dec. 1

1864

Kilpatrick and Dahlgren's raid ... ... Feb. 27—March 4
General J. Stuart killed ... ... May 11
Grant crosses the Rapidan ... ... May 1
Battle of the Wilderness .. .. May 5, 6
Spotsylvania ... ... May 10, 12
Series of flank marches by Grant to the Peninsula and thence to Petersburg ... ... May 12—June 15
Grant defeated at Petersburg ... ... June 18
Early's raid to near Washington ... ... July 9—July 13
Raid on Chambersburg ... ... July 30
Great mine exploded at Petersburg ... ... July 30
Sheridan ruins the Shenandoah Valley .. .. Aug.—Oct.

Battle of Winchester ... ... Sept. 19 | Battle of Cedar Creek ... ... Oct. 19

1865

Five Forks ... ...March 31—April 2
Richmond and Petersburg evacuated ... ... April 2, 3
Lee's surrender at Appomattox Court House ... . April 9
Johnston's surrender ... ... April 26

Lieut.-Colonel ALSAGER POLLOCK (late Somersetshire Light Infantry) :—I am rather appalled at the idea of opening a discussion at this Institution—a thing which I have never done before—and I must apologise for the unfortunate accident that has caused my name to go first on to the platform. Actually, I have but very modest aspirations; I merely wish to ask Dr. Maguire two questions, one of which I thought of before coming here, whilst the other occurred to me whilst I was listening to a lecture which, I may venture to say, has been, perhaps, the most interesting that I have ever listened to in this room. I will deal first with the question which suggested itself to me whilst the lecturer was speaking. Dr. Maguire attributed the failure of the British Army in the War of American Independence to the temporary loss of sea power. I think, however, that I shall be in accord with him when I suggest also another reason. You have no doubt all heard of a somewhat famous officer

who won the honour of being tried by court-martial for cowardice at the Battle of Minden, Lord George Sackville, afterwards known as Lord George Germaine. This gentleman, having been found unfit to lead a cavalry division, was promptly chosen by the British nation as a proper person to be Secretary of State for War! In that capacity, sitting in his office in London, where he received reports from seats of war thousands of miles away, he had the temerity to tell our generals in North America and also in India, what they should do! He received reports three months old, and sent out orders, in consequence of those reports, which reached the scene of action six months late for the situations to which they referred. Is it wonderful that our Armies did not prosper? The surrender of General Burgoyne at Saratoga was caused by that general having obeyed the definite orders of the Secretary of State for War, marching straight into the lion's mouth and being unable to get out of it. The surrender of Lord Cornwallis at Yorktown was caused, not so much by obedience to the foolish orders of, as by the underhand bungling of, Germaine, who led Cornwallis to believe that if he could do something wonderful he would be appointed to supersede his own chief, Sir Henry Clinton. There was an influence at work, an influence which, I think, was stronger than the temporary loss of sea power—the fact that our generals, in addition to being in difficulties in consequence of that temporary loss, were also tied by the legs by the amateur strategists at home. This is not, however, what I chiefly desired to talk about. I wish to ask Dr. Maguire a question with reference to the present war. Let us suppose that the Japanese forces had been commanded by Napoleon. There are two situations to which I would draw your attention, one a comparatively small one, and the other a great one. The Japanese commenced the war on land by throwing into Korea their first Army, under General Kuroki, which advanced to the line of the Yalu, and eventually, as you know, forced the passage of that river. Four days after the crossing of the Yalu by General Kuroki, the Japanese second Army landed at Taku-shan. I put it to you: if Napoleon had commanded the Japanese forces, would he not have arranged for the simultaneous or antecedent disembarkation of the second Army at Taku-shan, or, if possible, nearer to Ta-tung-kau, in order to back up that crossing of the Yalu? Supposing that even one brigade had landed, or was trying to land; in either case the Russians defending the line of the river were placed upon the horns of a dilemma. Had a force been detached to oppose the new enemy, by so much would the resistance on the Yalu have been reduced, and General Kuroki's task would thus have been lightened. If, on the other hand, General Sassulitch had decided to stay where he was, declining to detach any force against Oku; in that case the landing would have taken place unopposed, and whatever the former did, unless he adopted a third alternative, which was to retire at once without fighting, both his flanks, or at all events one of them, must have been turned under conditions which would almost certainly have produced the capture of his entire force. Actually, from lack of that combination, Sassulitch was enabled, though with great loss, to get away. I venture to say that if he had been compelled by such a combination to retire without a fight, the moral effect would have been strategically as great in favour of the Japanese as that created by their successful forcing of the passage. Now for the second situation. The Japanese, after their victory on the Yalu, advanced against Port Arthur. They fought the successful battle of Kin-chaou, the result of which was that the Port Arthur garrison was thrust into the Kwang-tung Peninsula. I suggest that if Napoleon had been commanding the Japanese he would

not have immediately pressed the siege of Port Arthur, but would have contented himself with keeping the garrison within the small Peninsula by holding the Isthmus, and that he would at once have concentrated every man at his disposal against Kuropatkin's field Army. Against this theory, of course, you will very likely say, in the first place, that the blockade of the Kwang-tung Peninsula has not actually been effectual, although the coast-line to be blockaded has been much reduced by the fact of the large Army operating in that Peninsula getting hold of a considerable part of it, and that therefore it was desirable to press matters. Again, you will say, there is the question of the Baltic Fleet. I disregard both of those objections. I believe that Napoleon, in command of the Japanese Army, would have used all his available strength at the front, with the result that General Kuroki might have had forty thousand more men at the Battle of Liao-yang; and if those forty thousand had fought as those actually present did fight, there would have been a Sedan in Manchuria.

Dr. MILLER MAGUIRE, in reply, said :—I am very glad that my excellent friend, Colonel Pollock, has intervened with some striking efficiency. I started, you know, in an awkward manner. I was very much afraid that the Chairman, or some other critic, would say that I was going too near political questions and politicians. I did not go very near. What he says about Cornwallis is true enough; but do you not observe that the one of the best possible methods of getting promotion in some branch of politics, not only in the year 1781, but in the nineteenth century and the present century, is to make an absolute fool of yourself in some other branch of politics? Why censure our predecessors when worse things are done before our own eyes? With regard to the combination of all divisions of an Army at a definite moment, of course, Napoleon's principle, as the Colonel said, is concentration of force. "Separate to live, concentrate to fight." But that is just the very thing that very few generals can do efficiently from separate points, as I think Colonel Pollock will admit. Von Moltke said that to concentrate several sections of an Army moving by different lines on a given point at a given moment is the very hardest problem in the whole art of war. It means converging lines from divergent bases combining under the observation of the opponents. The Prussians did so in 1866. The Prussians, moving from Dresden, Gorlitz, and Silesia, through the Erzeberge and Riesengeberge, concentrated on the Upper Elbe against the Austrians just at the proper moment at Königgrätz; but then the Austrians were not as well organised, and did not make any skilful use of detaining forces, otherwise the Crown Prince and Prince Frederick Charles could easily have been kept apart. Is this the situation which you would indicate?

Lieut.-Colonel ALSAGER POLLOCK :—If I may interpolate something, I would suggest that the cases are not quite analogous, because in this present instance in dealing with the Japanese War, the Japanese, with the command of the sea, would have been able, had they so wished, to have moved all their forces by sea from Kiao-chau to Kai-ping; then Kuroki could have been reinforced from the centre, and the left made good by sea.

Dr. MILLER MAGUIRE :—That is another confirmation of my doctrine, that the command of the sea really gives facility of movement that cannot be expected through mountainous districts like Bohemia or other merely inland theatres of operations. I will take another example for Colonel Pollock; perhaps we may agree on this one:—Napoleon never had com-

mand of the sea, nor had Frederick the Great, nor Turenne, nor any of the Austrian leaders, nor Lee nor Jackson; hence I am limited in my choice of examples to deal with the Colonel's very able improvisation. But perhaps he will accept the various French columns after they passed the Thuringer Wald and Upper Saal in October, 1806. The left, Lannes, Angereau, and the Guard, and the original right, now the centre, under Soult and Ney, moved against the Prussians at Jena, while Davoust, of the original centre, attacked them at Auerstädt, October 14th, and Bernadotte was close at hand. The various columns thus compelled them to form front and flank, and threatened their communications with Berlin on the same day. Does this help Colonel Pollock's case by way of precedent?

Lieut.-Colonel ALSAGER POLLOCK:—Precisely.

Dr. MILLER MAGUIRE:—Well, if he can only persuade the Japanese to play precisely the same Napoleonic game at the next great battle he will be doing the Russians a deadly injury. Now for his next point: As to the advisability of "letting a fortress go"—that is, take care of itself and not interfere with the strategy of field armies. The great field forces on which a State relies for victory should never be risked except with the object of winning a decisive battle. They are vital, if they win. Lost fortresses can be easily retaken, and evacuated territory can be re-occupied. I won't discuss the Ladysmith imbroglio, nor will I follow Colonel Pollock as to Port Arthur. The Japanese were probably influenced by other reasons than simple principles of land manœuvres. But when Masséna's brilliant defence of Genoa occupied the attention of Europe, when he was invested by the British Fleet and part of the Austrian, Napoleon deliberately ignored him, entered Italy by the Great St. Bernard instead of by shorter and easier routes to Genoa, but surprised the main Austrian Army, interposed between it and its base, compelled it to make terms after Marengo, June 14th, 1800, and of course got back all that was lost. MacMahon would have "let Metz go" for a period in 1870, but Palikao and the partisans at Paris thought otherwise.

The CHAIRMAN (Major-General Sir G. H. Marshall, K.C.B.):—As no one else wishes to speak, I should like to say two or three words. It seems to me that the keynote of this lecture, as regards ourselves, is the extreme importance of preparedness, not only preparedness of the naval and military forces, but of the nation. In this assembly, Dr. Maguire has a most sympathetic audience; it practically consists of men who have served their country or are now serving it in the Regular or Auxiliary Forces, and therefore he gets an audience that is entirely with him, and with the spirit of his lecture. But what have we got outside? There is a large proportion of the public that is callous; not only callous, but I am sorry to say that there are a great number of them without a spark of patriotism of any sort. A great many of them think that they have quite absolved themselves from all effort towards the nation by the payment of taxes, and that nothing more is required of them. It struck me, in listening to Dr. Maguire, that I should like him to tackle some of these people; and it would be a good thing indeed if he could convert some of them to what we all appear to be thoroughly agreed upon as to the principles of our conduct towards the nation. It is now my pleasant duty to propose a hearty vote of thanks to Dr. Maguire for his most instructive, entertaining, and interesting lecture.

Dr. MILLER MAGUIRE:—To be allowed to lecture for so long to such an audience is one of the greatest honours that could be conferred on any patriotic Englishman.

SHORT SERVICE AND THE NAVAL RESERVE.

By CHARLES S. JERRAM.

Tuesday, 8th March, 1904.

Admiral the Hon. Sir E. R. FREMANTLE, G.C.B, C.M.G. (Rear-Admiral of the United Kingdom), in the Chair.

Admiral Bosanquet, at the Salters' Company dinner, 22nd April, 1903:—

> "The great problem in the Service just now is the provision of an adequate Reserve."

OUTSIDE Service circles very little attention has been attracted by the Report of the Committee on the Naval Reserves, to give the document its official title, which was presented to Parliament early last year. Yet the Report deserves the earnest attention of all patriotic persons. Sir Edward Grey is a statesman amongst politicians, and the fact alone that he presided over this Committee should be sufficient to ensure that the whole matter of Naval Reserves would be considered on broad and statesmanlike lines, while the other members of the Committee were men well able to sift the evidence brought before them, and to afford the practical and technical knowledge required. Recollecting, though, the vastly greater difficulty of obtaining an adequate reserve of stokers than that of obtaining an adequate reserve of seamen, it would seem particularly unfortunate that no naval engineer officer served upon this Committee. However, if I may venture to express an outside opinion, the Report appears to be admirably drawn out, and especially reflects the utmost credit upon the very able secretaries, on whom so much of the work devolves in these matters.

But the Report not only deserves attention, it requires attention. In this country our memory is short (most of us, for instance, have already forgotten the lessons of the war in South Africa), and we fly rather aimlessly from point to point, from strict economy to lavish expenditure, from Navy to Army, from Army to Education, from Education back again to Navy, from Navy back to Economy. Just at present it is the fashion to cry aloud from the omnibus top, "We must have an all-powerful Navy"; but the mood may not last. Still, perhaps, at the back of the head of every thoughtful English man and woman this idea at least is fixed—we must, at all costs, have a Navy equal to our probable requirements.

Now surely it is hardly possible to imagine any matter of greater importance to the Navy, and therefore to the Empire, than that of the Reserves of the Navy. The present writer will never forget his astonishment and consternation, when, some years ago, he heard a naval officer of some distinction say in the presence of other naval officers, as

though it were a matter of course: "There can be no doubt that, on the outbreak of war, the Naval Reserve would at once disappear as a Reserve. It would all be taken to fill up the gaps in the first fighting line." It was, in its way, a consternation such as was that of Mr. Balfour when he found at a certain stage of the late war that there were not enough cartridges in reserve in this country to supply a single battalion of Volunteers. "What," he asked, "should we do then, if we had a prolonged naval war, such a war, for instance, as that at the end of the eighteenth and commencement of the nineteenth centuries?" To this question there were several replies. A long naval war could scarcely be anticipated in these days. In the naval wars of the future ships will perish at a rate out of proportion to the loss of men, and so forth. But several officers looked grave, and the writer could not help remembering Captain Mahan's dictum that in the naval wars of the future that Power will win which, when her first fighting line is destroyed, can most quickly and effectively bring her Reserves to bear.

Before proceeding to consider the details of the Report, attention should be called to the view held by many naval men that in future war-ships will be destroyed at a rate out of proportion to the destruction of men. This is the view of the Committee: "As far as it is possible to judge, the wastage of ships would exceed the wastage of their crews, and so set free officers and men from employment in the initial War Fleet." The Committee is cautious—"as far as it is possible to judge." We have so often made mistakes that it should be our aim to be on the safe side in a matter which so nearly concerns the safety of the Empire as that of an adequate supply of men for naval warfare. Let us for a moment push the idea to its conclusion, and suppose ourselves with a splendid first fighting line, with a reserve of ships at home, but no reserve of men. Following on the lines of the Report, let us imagine, for instance, a great naval battle in the Pacific, in which ships are wasted out of proportion to the wastage of men, as is the case at the present moment with the Russians at Port Arthur. Let us suppose a number of men stranded, so to say, at Hong Kong, or elsewhere, with nothing to do. It is not likely that there would be fresh ships for them in the Pacific. But meanwhile we might have the utmost need for men, say, in the Channel, to man our various reserves of ships in home waters. It is clear enough that in this case, even if the statement of the Committee is correct, it does not affect the question. A Naval Reserve of *men* is mainly required at a get-at-able distance from the great English naval ports, from Portsmouth, Plymouth, etc. Certainly it might be very desirable to have a reserve of *ships* all over the world, but that is not the question with which we are now concerned.

But is it the fact that in the naval wars of the future the wastage of ships will be out of proportion to the wastage of men? We have noticed that even this very strong Committee will not pronounce a definite opinion on the subject, and it would be impertinent for the writer of this paper to air any private opinions in regard to the matter (the case mentioned above supports the view of the Committee). It is certain, however, that we can fit out and supply ships at a more rapid rate than any other country, and war *matériel* as fast as any other country. I am not talking here of new construction, but of fitting out that second line to which Captain Mahan referred. The

old song said: "We've got the ships, we've got the men, we've got the money, too." But that would only be true at the commencement of the war. After war had continued for some time we should, as things are at present, at any rate in home waters—that is to say, from England to Gibraltar, or from England to Canada, or from England to France, Germany, or Russia where she touches the Baltic—have the ships and *matériel*, but not the trained men; while Germany, and probably France, could man her fleets twice over with, on the whole, sufficiently trained men—elaborately trained men are not, in modern naval opinion, absolutely necessary for all the members of a gun's crew.

To sum up this part of the subject. It is possible that abroad we might have more men than we had ships for, but at home we should lack men.

If, however, we cannot be certain that in future naval wars the wastage of ships *all over the world* will be proportionately greater than the wastage of men, we are justified in considering as of some value the statistics of men required in war-time, as compared with those required in peace-time in the wars of the past. A useful comparative table was given in the "Naval Annual" for 1899—that invaluable annual with which the generosity and patriotism of Lord Brassey supplies a rather careless Government and public. Subjoined is a table showing the numbers of seamen and marines voted in peace and war during certain years, and a paragraph commenting upon that table:—

Years.	——	Seamen.	Marines.
1764-75	Peace.	11,000-14,000	4,000-5,000
1783	War.	84,700	25,300
1784-92	Peace.	11,500-14,000	4,000-4,400
1793	War.	40,000	5,000
1811-13	War.	113,000	31,000
1815	War.	70,000	20,000
1824-52	Peace.	20,000-32,000	9,000-11,000
1856	War.	60,000	16,000

"In the three great wars in which we were engaged during the latter half of the last century we required from four times to eight times the number of men for the Navy that we had had in the intervening years of peace. In the last European war in which we took part we required double the number of men for the Navy that we had in the previous years of peace; and this although we were fighting in conjunction with an ally which was powerful at sea, and against an enemy whose sea-power was relatively insignificant."

It is clear, then, that in the past we ourselves required many more men in war-time than in peace-time, and other Powers have had a similar experience in quite recent times. For instance, in the "Naval Annual" for 1902, Lord Brassey, speaking of the United States as "potentially the strongest of the Naval Powers," says:—"In the short war with Spain the number of men in the Navy increased from 12,000 to 24,000." Surely this is a most significant statement. Spain was, in the seas on which she fought, a very weak Power, yet the United States Navy is compelled to double her numbers of men in order to meet her. We are not certain that something of the same kind will not be the

case with us in foreign waters in the wars of the future, and we may, I think, take it for granted that it will be the case so far as home waters are concerned. How are the men to be provided?

There are two methods:—

1. A large increase of regular seamen and marines.
2. An adequate Naval Reserve.

It ought to be mentioned at once that, if desirable, there would be no difficulty in at least doubling the number of long service seamen. Over and over again the present writer has seen two or three of the best of a batch of boys picked out, and the remainder rejected, for some defect which is contrary to regulations, but which scarcely impairs general efficiency. Several years ago a large increase of seamen was suggested, and Mr. Balfour replied: "What are we to do with the men?" At which people laughed. But the reply was sound enough—with explanations. "No country," said Lord Brassey in the House of Lords in 1889, "has ever maintained afloat in peace the numbers required in actual war. The reason is obvious. Such a policy would involve an enormous expenditure, not only on pay, provisions, and pensions, but in the maintenance of ships to give the practice at sea which is essential. If men remain too long in harbour, they lose their sea habits."

From the Report we gather that the annual expenditure upon each unit of the active Navy, including Coastguard, is from about £34 for marines afloat to about £58 for stokers afloat, and £49 for seamen afloat. Seamen in barracks cost annually about £56, stokers £65, marines £43, and the annual expenditure upon the Coastguard is about £83 a head; while Royal Fleet Reserve (Class B) seamen, stokers, and marines cost annually from £15 to £16, and Royal Naval Reserve seamen and firemen from £10 to £16. Economy is one of the cries of the day, and probably the best of them, or, rather, the second best, for it comes second to the necessity for a sufficiently strong Navy, but second to that only. In war-time a full purse and a large population are to most countries the two most valuable assets. To the British Empire they come after the Navy, but of almost any other Empire we may say that in the long run and over many years that country will win in the end which has the longest purse and the largest population. Even on the Navy we cannot possibly afford to spend from £34 to £83 per man, if we can get something good enough for from £10 to £16.

And so, after considerable agitation, a Committee was appointed "to consider generally, whether and how, consistently with efficiency, Naval Reserves can be more fully utilised to supplement the Active Service ratings in peace or in war. What is desired is *to establish a principle and policy* in respect of the support of active service ratings by Reserves, which may be applicable to any future increase of the Fleet."

The italics are my own. It is seen here, and will be more clearly seen further on, that a tentative policy is established, that the thin end of the wedge of short service in inserted in the naval fabric, a policy advocated at the Royal United Service Institution by Admiral Sir Edmund Fremantle and others, and which I ventured to suggest at the same Institution some time ago.

The Terms of Reference for the Committee add:—"It will not be open to the Committee, without further instructions, to recommend any fundamental change in the continuous service system under

which active service ratings of the Navy are at present entered and trained; but they may make recommendations as to improvements in detail, and generally as to how far, consistently with efficiency, the active service ratings can be supplemented by Reserves. Moreover, if they arrive at the conclusion that the formation of an adequate Reserve is not compatible with the present system, they are requested to make a report to that effect."

There is then at present to be no "fundamental change," and it can hardly be said that there is such a report as suggested under a certain contingency in the last sentence of the above paragraph, unless, indeed, a striking suggestion to employ soldiers as sailors, a suggestion, referred to later in this paper, may come under that head. But though radical change be set aside, it is clear that the Committee is not at all heart-easy in this matter, for, embodied in this short Blue Book is a bewildering number of suggestions, but no one clear plan—suggestions which it will surely tax the ingenuity of even that most hardworking and versatile of all men, the "handy officer" of His Majesty's Navy, to carry out effectively.

Let us first see of what the present Reserves consist, and if I am here and there a little explanatory, naval officers will excuse me, recollecting that others besides those in the Services are permitted to attend these discussions.

According to the Report, the Reserves consist of 4,200 Coastguard, 12,500 long service seamen and marine pensioners, many of them, by-the-by, approaching the age of 55, 1,350 Royal Fleet Reserve seamen, 500 Royal Fleet Reserve stokers, 850 Royal Fleet Reserve marines, 3,900 Naval Reserve firemen, and 20,400 Royal Naval Reserve seamen, producing a total efficient Reserve, according to the Report, of 34,000, the Active Vote for 1902-3 being 122,500. It was suggested by the Royal Commission of 1859 that the proportions of the two branches of the Service should be: Active Service men 73,000, Reserve 38,000. It is clear that if we are now to attain similar proportions we must increase our Reserve by about another 30,000 men, and the Committee appears to approve of these proposals of the Royal Commission of 1859. It should be observed that the Royal Naval Reserve seamen are merchant seamen and fishermen, of whom about 11,000 have had a fairly efficient training. It will be seen if we tot up the figures above of the various sections of the Reserve that they come to 43,650, not to 34,000. It is clear, then, that at present we must deduct some nine or ten thousand men from the nominal Reserve to arrive at the efficient Reserve. The grand total of the Reserves up to 1st January, 1904, is 45,707. Making a similar deduction, we arrive at an effective force of about 35,000 men.

But does this total Reserve force exist except on paper? It is obvious that a portion at least of the Coastguard, and also a large proportion of that part of the Royal Naval Reserve which belongs to the merchant service, would be required where they are in time of war even more than in time of peace, and the same remark applies to the Royal Naval Reserve of firemen. The number of British seamen and British firemen in British ships is dangerously low already, and is still decreasing, so far as seamen are concerned, at a rapid rate; so far as firemen and trimmers are concerned, the numbers in 1890 were 24,000. In 1901 the numbers were 23,500, but meanwhile the number of steamers

has increased. Now, as is well pointed out in the Report, one of the objects of a strong Navy is to enable our merchant ships to keep the sea in time of war, so there is not much sense in taking a large number of British seamen and firemen from their ships in war-time, a fact which is recognised in theory by the Committee, but in practice, I imagine, the Admiralty would still continue to get all they could from this source. Since writing the above the Naval Estimates for 1904-5 have been issued, and the First Lord notices a satisfactory increase in the valuable Royal Fleet Reserve, which "already numbers 8.375 men." I imagine that the increase is largely in Class B, "men who had left the Navy without permission, and whose services were lost to the country until the establishment of this Reserve." And perhaps some thousands more men may in time be derived from this source.

The present Naval Reserve scheme, however, of necessity, because the number of British seamen in British ships is becoming smaller, and of choice, because such men are wanted in these ships more in war time than in peace time, proposes to rely more and more upon the fishermen and long-shore men who now form about half the Reserve, and it is upon this source of supply, together with such supplies as may be drawn from the Colonies, that, failing new schemes, the Naval Reserves must more and more depend. It is impossible, and, indeed, not necessary, to deal here with the question of training. Suffice it to say that the Committee agrees with Admiral Tryon's Committee of 1892, that there must be such a cohesion and solidarity in the various forces when massed together "that they may be inspired with that justifiable confidence and unity of action which go so far to ensure success." "The usefulness, or otherwise, of Naval Reserves," says the 1903 Committee, "depends very greatly upon the extent to which they will promote or impair this cohesion and solidarity on board ship." It is necessary, therefore, that ships actually in commission in time of peace shall be to some extent manned by Reserves, but such a change of system must be carefully watched.

Any partial manning with Reserves in time of peace is sure to be unpopular. It entails extra work upon the already hard-worked—in the case of commanders or first lieutenants overworked—executive officers. But the naval officer is a practical, many-sided man, filled full with zeal and devotion to duty, and, though he will grumble, he will make the best of what he sees to be in the interest of the Service and of the Empire.

The plan for providing a Naval Reserve, proposed in 1859, was to train boys "in the same training-ships, and on the same system, for the Navy and the Mercantile Marine, those who entered the latter were to be enrolled in the Naval Reserve, and to be employed mainly in the coasting trade," and this plan, or somewhat similar plans, still finds much favour. But the Navy has grown, and the number of British seamen in British merchant-ships has decreased, and the Committee considers that it is not feasible to attempt such a scheme now. Compared with the result obtained as regards national defence, it would cost too much. Its advantage would be that, at the outbreak of war, you would have a large Naval Reserve. Your merchant-ships, it is true, would be depleted of their best men in time of war, and, in time of peace, such men would demand high prices, unless, indeed, they were paid by Government a heavy retaining fee, and that would resolve itself into a heavy subsidy of part of the merchant service.

Moreover, merchants, and the captains of merchant-ships, might prefer to make their own arrangements. These are some obvious difficulties in the way of an attractive scheme, a scheme supported at the present time by the high authority of Sir John Dalrymple Hay, and by others who are particularly well acquainted with the needs both of the Naval Reserve and of the mercantile marine. The beauty of the scheme is its unity and coherence.

To pass on now to war requirements, and to the suggestions and proposals of the Committee.

In the Report, war requirements are put down under two heads: "A" on mobilisation; "B" afterwards. It is estimated that after mobilisation 25 per cent. or less of most of the active service ratings will be left. Of stokers, the proportion will be, unhappily, far less. It is estimated that the proportion of 50 per cent. of the numbers required to mobilise the fleet would be required subsequently in addition. This is a minimum number by the admission of the Report, and, in a long war, we may be sure, I believe, that it would be far exceeded However, taking the number at 50 per cent., and supposing that of the various ratings from 10 to 25 per cent. of active service men are left after mobilisation, the remaining 40 to 25 per cent. must be supplied by the Reserves. Of these Reservists, the most valuable section is undoubtedly the Royal Fleet Reserve, that is to say, that part of the Reserves which consists of men who have served their time in the Navy. In order to increase this invaluable Reserve, the Committee proposes that in future one-fourth of all ordinary seamen and A.B.'s (trained men) shall be non-continuous service men, leaving all the gunnery and torpedo ratings and three-quarters of the remainder to be filled by continuous service men; also one-sixth of the stokers are to be non-continuous service men. The seamen are to enter at the age of from 18 to 25, and stokers from 18 to 28. They are to serve for five years in the Fleet, followed by service in the Royal Fleet Reserve to make up 12 years from date of entry.

In these pregnant and most important suggestions we have a return, so far as it goes, to non-continuous service, a system of the past never entirely abrogated, so far as certain ratings are concerned, and from this fresh start I foresee most important developments, which time and necessity will bring about.

It must not be forgotten that in the old days men were only enrolled for the ship's commission—say, three to five years—and that when, in 1853, a ten years' service was introduced there was a general outcry amongst officers and men.

There will be great difficulty in getting stokers, and it is suggested that for the present, at any rate, supernumerary non-continuous service stokers should be accommodated and trained, and that, in order to increase the number of stokers, non-continuous service seamen should be trained both as seamen and stokers. Here we have a suggestion of the German methods of interchangeability—methods tried on one British station at least some years ago in individual ships, but promptly suppressed. It should be noted that, since the Report was issued, an excellent arrangement has been made, whereby all seamen passing for A.B. have to pass in stoke-hole duties; also all boys now joining are being trained in these duties.

As stated above, non-continuous service men are to serve five years in the Fleet, and for seven years in the Royal Fleet Reserve.

thus making up the twelve years' ordinary service. It is not really a short service, as service goes in foreign fleets, and, being actually a continuous service, and being also a shorter service than that to which we are accustomed, the expression "Non-Continuous Service" is hardly a happy one, and it is introduced probably because of the prejudice against the shorter expression. After their service on board ship these men pass to the Royal Fleet Reserve, Class B (2). In regard to employment when in the Reserve, the present writer is able, from a somewhat full experience, to confirm the opinion of the Committee that Royal Fleet Reserve men seldom lack employment if they desire it. He has lived in a parish in the West Country in which probably every labouring man is either a pensioner, or has some near relative a pensioner; every boy and man of the labouring class in the parish, in fact, being in the Service, or having been in the Service, or having a father, a brother, or a son in the Service. The Navy, with its elastic system, turns out men able to put their hands to all sorts of work—"handy men"—and pensioners seldom fail to find employment if they want it. Naval service is hereditary in these families, and has been hereditary in them for two generations at least.

But it is also very properly proposed that the whole of the crews of merchant ships subsidised by the Government should be Reservists, either in the Royal Fleet Reserve, or in the Royal Naval Reserve. The number of men in classes A and B of the Royal Fleet Reserve, including seamen, stokers, and marines is, according to the Report, 5,858, of which number stokers are less than a thousand. According to the latest estimate the numbers of the Royal Fleet Reserve reach 8,375 men.

The Royal Naval Reserve is a larger body, numbering, according to the Report, in all some 26,000. Of these, 20,441 are seamen, and 1,500 executive officers, the engineer officers being 400, and the firemen 3,936, so that it is clear that the Royal Fleet Reserve of stokers, at the outside not more than twelve or fifteen hundred in numbers, will not be much helped in time of war by the Royal Naval Reserve. Especially is this the case when we remember that British firemen will, like British seamen, be required in British merchant ships even more in time of war than in time of peace. So far as the stokers of both branches of the Reserve are concerned, they hardly exist for practical purposes, and various odds and ends of ways are suggested for supplying the defect, two of which are perhaps especially worth mentioning, namely, the enrolment, if you can get them, of gas and electric light stokers, and, more important, so far as numbers are concerned, the enrolment of Lascars and Kroomen. But surely it is a position fraught with the utmost peril to the Empire, when we find that our present and possibly our future reserve of British stokers is practically non-existent. Moreover, to the civilian, it would seem that the stoker should be an even better disciplined man than the seaman. I can imagine nothing more like the infernal regions than the stoke-hole of a man-of-war in a battle in rough weather in a broiling climate, with an undisciplined set of stokers, unaccustomed to the sea, and to the conditions of a naval stoke-hole. Here, if anywhere, you require perfect knowledge, perfect health, and that entire devotion to duty which has been the glorious tradition of naval engineers and stokers on several memorable occasions in the recent past.

The Royal Naval Reserve of *seamen* is, comparatively speaking, more satisfactory than that of stokers, that is to say, the numbers are, as we have seen, over 20,000. But as regards about half of these, they would be required in British merchant-ships in time of war even more than in time of peace. We may say, I believe, that not more than 15,000 men would be obtained, and 5,000 of that number with much trouble, and after war had continued for some time, and with added and serious danger also to our trade and food supplies. Several methods are suggested for increasing the supply of Royal Naval Reserve seamen, the most interesting of which seems to be the proposed establishment of ships and batteries at our Eastern fishing ports (a suggestion since partially carried out), in order to attract the East Coast fishermen. The East Coast fishermen, as such, are of more importance than the West Coast fishermen, but the latter body provides comparatively an infinitely larger number of men for the Navy and the Reserves than do the fishermen of the East Coast. In the West the Navy is hereditary. Besides, our West countrymen are both shrewd and constitutionally lazy, shrewd enough to know that their Naval Reserve pay will, to a large extent, supply their small wants and keep them in comparative idleness—that and occasional fishing when it does not rain or blow. Whether batteries will attract the East Coast fishermen remains to be seen. These men look upon fishing more as a profession than do their brethren of the West Coast. They may not have the time to spare for employment in the Naval Reserve, but the experiment of establishing naval batteries and centres on the East Coast is well worth trying, especially, perhaps, the suggested transfer of training-ships to Harwich from Portland, which port will now be required for other purposes. It is worth while noticing here that some naval captains prefer a London crew to any other, on account of their smartness, a quality which will be more needed than ever in future naval war, and an endeavour is to be made to attract the Thames watermen into the Naval Reserve.

Naval Volunteers were some years ago suppressed, but the system is now revived. Why, asks the Committee, should the Army get all the Volunteers? The new system is working well. London has already 1,000 Volunteers. The Clyde has the same number. Volunteers are to use modern quick-firing guns. It is earnestly to be hoped that they will be efficiently trained by able, tactful, gunnery lieutenants, in active service, who will know that their promotion depends upon their efforts.

Then there is the suggestion of enrolling Colonial Naval Reserves, but with the express proviso that "in making these suggestions the Committee had regard solely to strengthening the Imperial Navy without impairing the central control or localising any part of the Fleet for war service"; with regard to which one can only remark that (notwithstanding recent Colonial action) the exact opposite seems, so far as one can judge from the Press, to be the desire of Canada, and probably of Australia.

In regard to other possible Reserves there is an interesting suggestion, which might be of much value were all our forces under a common guidance and directorship, as to using the Army as a Naval Reserve in times of naval warfare. There is no special mention made of Artillery; but to the layman it seems that the Artillery, with sea legs and some technical instruction, such as learning certain calls and orders, would be a most useful Naval Reserve, the most useful

Reserve, in fact, which could be imagined, for in the case of war with almost any European Power or Powers in Europe, the Navy would be of infinitely greater importance than the Army as such. Soldiers have fought on board ship in the past; why should they not do so again? I am not sure that such might not be a solution of the problem, so far as fighting men are concerned, at any rate until command of the seas were obtained. In this connection it is interesting to note some remarks by Admiral Sir John Fisher at last year's Royal Academy banquet. Sir John Fisher has had, and will probably have in the near future as much to say as anyone in regard to new naval schemes, and he appears to contemplate the possibility of the Army fighting side by side with the Navy on board ship; but to co-ordinate Army and Navy, a Committee of Defence would be required with a great War Minister at its head, not an Army Minister, nor a Navy Minister, but such a War Minister as Cromwell, or Marlborough, or Pitt.

By these and other methods it is proposed to increase the Reserves of the Navy. One means of so doing appears to have escaped notice. There are in every man-of-war a number of men, stewards, writers, domestics, and band, amounting perhaps in a battleship to 50 men. Some of these men are trained in rifle and cutlass and pistol drill, all of little use in a naval engagement. The argument is that there is plenty of scope for these unskilled men during an action. So there is; but, having all these men, why not train them in heavy gun drill, and improve their physique by making them learn to pull an oar, and do any ordinary duty which a seaman or marine might be called upon to do? They could then be employed as seamen or marines in war-time, and their places could be taken by men who would be thrown out of work in the merchant service, and who would be perfectly competent to do the work of servants, cooks, and so forth, without any naval training: men such as the enormous number of stewards, etc., in our big liners. These men would do for "powder passers," as the Americans call them, as well as the present domestics. They would have their sea-legs, know port from starboard, forward from aft. Their services ought to be readily obtained for a small retaining fee. The "Oceanic" has 210 men in the purser's department, and in time of war the stewards, etc., would be thrown out of work, as passenger traffic would cease, or be carried on to a very limited extent.

There are besides in a man-of-war men belonging to many trades, and the principle of interchangeability is suggested in the Report. Might it not be possible to have every man on board ship trained sufficiently at any rate to take a number at a gun? They could then be employed as seamen in war-time, and their places taken by a Reserve formed of men of the same trades — coopers, carpenters, painters, plumbers, etc.

But incomparably the most important suggestion of modern times is that return to non-continuous service suggested by the Report—short service a layman might venture to call it, though I have never personally come across any officer who would endure such an expression. And indeed the difficulties are very great. There is the danger that you may mar one Service and fail to make another. At present the Naval Service is a life-long service, and, usually, hereditary. It is popular largely because of these facts. However, in issuing the Navy Estimates statement for 1904-5, Lord Selborne announced that

"It is certain that the full number of 625 (non-continuous service) stokers, and 375 (non-continuous service) seamen proposed by the Naval Reserves Committee will have been enlisted before the end of the present financial year." The number is, of course, very small. So far as the more important requirement, stokers, is concerned, it is interesting to notice that, up to a recent date, Devonport was far ahead of Chatham and Portsmouth in enlisting the non-continuous service men required.

In regard to the present scheme, there are a good many practical difficulties. In an Appendix to the Report the working of the scheme is shown in relation to various ships. Take a ship with a total complement of 314 seamen, she would have 275 continuous service seamen and 39 non-continuous service seamen; also 112 continuous service stokers, and 22 non-continuous service stokers. To a civilian it would seem that there would be great difficulties in working such a scheme. There would seem to be a risk that the non-continuous men would be nobody's children. At least it would appear that non-continuous men should not go to newly commissioned ships when first entered; that they should go in batches of, say 10 or 20 men, or the whole non-continuous service complement, and that Commanding Officers should understand that the men are sent to be trained, not to do odds and ends, as some of the Naval Reserve men complain is the case with them. A great deal would depend upon Commanding Officers, whose task is hard enough at any time. Some help might be afforded them by the men having had, say, a previous two months' training in barracks, in cleanliness, smartness, and the rudiments of drill; and this would seem also to be of advantage to the men. It would be very desirable that they should make a good impression on their comrades and officers when first going on board. In cases where they have been entered in batches and placed under a petty officer, there are already good accounts of them.

There is a clause in the regulations which would appear to require much care in carrying out. It is suggested that captains should be empowered, under the authority of the Commander-in-Chief, to transfer specially qualified men to continuous service. It would seem that the utmost care should be taken in this matter, and transfers only allowed under most exceptional circumstances, otherwise there would be a danger that every decent man who entered might be transferred, and the Reserve consist only of the useless.

But these are practical points and matters of working and detail upon which, perhaps, I ought hardly to venture an opinion. More to my purpose is it that recent experience in the training of seamen to serve as stokers tends to show that the proposed proportion—one in six—of non-continuous service stokers (how much shorter short service would be, if one dared to use the expression) might be much increased. The seaman becomes a fairly satisfactory stoker in about a month. Besides, stokers do not join as boys, so there is less prejudice to overcome in their case.

Time fails me to notice many admirable suggestions in this able Report, nor must I be led away too far by a criticism of detail, in any case of small value as coming from a landsman. The point is: Will these many proposals suffice to provide a War Navy? At present, if we may believe the statistics given in an earlier part of this paper, we have, so far as men are concerned, a Peace Navy. I do not think

they will do so unless the short service system (there, it will out) is greatly extended.

I believe that it is necessary for the safety of the Empire that short service should become the system of the Navy, as it is the system of the Army, reserving long service for specially selected men.

There are ill-omened prophets who prophesy that affairs will not be settled in the Far East until after a war between Great Britain and Japan (with, perhaps, the United States) on the one hand, and Russia, France, and Germany on the other hand; and, had it not been for the personal service to the Empires of Great Britain and France of his Majesty the King and the President of the French Republic, so awful a disaster as that War of the Worlds might have been within our immediate purview. Should we have had men enough for such an emergency? Should we have men enough for any similar emergency even under the present scheme? We know that it would not be the case. If it be contended, why say these things? Why inform foreign Powers? That is a contention of ignorance which hardly needs refuting here. Foreign Powers know all about it.

In discussions on the Navy Estimates, nothing is more striking than the agreement of Members of Parliament, who usually hold all sorts of opinions, as to the need for as strong a Navy as the Admiralty may demand. In fact, this matter is put outside ordinary politics. The average member of Parliament allows himself a good deal of licence; but he cannot play with a matter of life and death. There is one other remarkable note of present debates—the note of economy; a matter, as I am convinced, of the utmost Imperial importance. May our municipal and Imperial guardians have strength to resist fads. This is no time even for improvements, unless they are necessary for defence, or will bring in money. The argument for a strong Naval Reserve is based upon these two grounds: necessity and economy. I do not say that this Empire *cannot* face the expenditure which would be necessary if it were decided to maintain in time of peace a sufficient number of long service men for war; but I do say that no Government could face the enormous expenditure of so doing which had not previously made trial of a genuine system of Naval Reserves, provided either by short service or in some other way. The Navy Estimates this year, even when Russia is partially crippled, amount to close on £37,000,000, and it seems but yesterday that they were seventeen or nineteen millions. How are we to economise? We cannot safely economise in construction.

It is the fashion for the moment to disparage the naval power of France, and indeed she is not relatively so strong as she was; but in men she is, compared with us, very strong. The French *Inscription Maritime* has on its rolls over 200,000 men, and can certainly provide over 100,000. Of these the Reserves would produce about 50,000. I believe it would be a liberal estimate to put down our own available Reserves at 22,500 seamen of sorts, and 2,500 stokers and firemen. Admiral Sir Edmund Fremantle calculates that in a war with France alone we should require 250,000 men, and if the above figures are anything like correct, it seems obvious that the gallant Admiral does not err on the side of excess. How many men should we require if we were at war with France and Russia? Perhaps 400,000; perhaps many more. Merely to name such numbers shows the futility of suggesting that we should keep up such an active fighting force in times of peace. We must learn to rely upon a Reserve, and though the

conditions are not altogether alike, the splendid way in which our Army Reserves flew to the colours and their splendid services at the time of the South African war are a happy omen to those who, by short service, would double and treble and multiply by five or ten our Naval Reserves, and rely year by year increasingly upon them. We must remember that it is not so very long since short service was as unpopular in the Army as it is now in the Navy; yet without it the South African war would hardly have been possible; and, had we failed in that war, the Empire would have been shaken to its foundations.

The German Navy is believed to be efficient. Yet it is a short service Navy, which proposes to provide two men in the Reserve for every man serving afloat. The Germans have at present rather under 40,000 men afloat, and have not yet got their full proportion of Reserves; but by 1916 they will have 56,000 active service men, and a very considerable Reserve, which by about 1920 will amount to 112,000 men. The preamble to the German Navy Bill of 1900 states that "Germany must have a Fleet of such strength that a war, even against the mightiest naval Power, would involve such risks as to threaten the supremacy of that Power." The "Mightiest Naval Power" can, of course, only mean England; and Germany with short service proposes to threaten our naval supremacy. In the case of men in our own Navy who have joined the Service, through the "Northampton," at a later age than that at which the majority join, it has been found that a few years later these men have gained an equal number of positions as petty officers, etc., compared with those who joined as young boys in the ordinary way.

Of course, if conscription were decided upon, the matter would be settled. The idea of conscription has hitherto been associated chiefly or only with the Army; but, to my mind, it is of infinitely more importance as regards the Navy. At one time during the late war it was thought that the Government would go out upon conscription; but it is clear from the Prime Minister's speech at the United Club that to-day again conscription is outside practical politics, even, perhaps, such a modified form of it as suggested by Sir George Taubman Goldie. And, indeed, there is force in Mr. Balfour's argument, or implied argument, that one could hardly compel all Englishmen to serve for the benefit of the Empire, while Canadians and Australians might serve or not as they pleased.

The interesting proposals and suggestions of the committee are marred by their number. We want some one or two schemes, plain, easily understood, capable of providing large numbers of fighting men, and above all, of stokers. For the latter I can see nothing but a greatly extended system of short service. For the former nothing but short service combined, perhaps, with use of soldiers on board ship. The problem of the Naval Reserve is incomparably the most important Imperial problem of the day. On its right solution may depend the existence of the Empire.

A comparison has been made between ourselves and Japan. The comparison is one-sided. Japan by a sudden dash became mistress of a sea—for the time being at least. We cannot by dashes in all directions become mistress of all seas. We must have men enough for long wars.

If we are asked to propose a detailed plan, I reply: That is not our business. I point to a danger, the greatest, as I believe, of Imperial dangers, and, as one who with his whole heart and soul loves his country, thinks it the greatest, highest thing of all to be a citizen

of the British Empire, I would venture to use those famous words of a sailor Prince, and cry aloud that we must "Wake up," lest, haply, the enemy come upon us unprepared, and take from us our Navy in which we trusted, and our Empire which we love.

Commander W. F. Caborne, C.B., R.N.R. :—The question of our Naval Reserves has been so often debated in this Institution that it is very difficult to say anything without repeating oneself, but it is an absolute and undeniable truism that the subject is one of the gravest and utmost importance. It is evident that it is eminently undesirable, on the score of expense, that the country, while of necessity constantly adding very largely to the *matériel* of the fleet, should also go on increasing indefinitely the permanent *personnel* of the Navy. The paper before us this afternoon is mainly devoted to reviewing some of the suggestions and opinions of the recent Naval Reserves Committee, whose report, while possibly open to criticism in some of its details, would appear to have been pretty generally received in an appreciative spirit, and the lecturer's principal point seems to be the extension of the plan of short service—the thin edge of the wedge of which has been inserted into the existing system as the outcome of a recommendation of the aforesaid Committee. Whatever our views may previously have been—and it is almost needless to say that the views which may be perfectly sound under one set of conditions to-day, may be equally unsound under another set of conditions to-morrow, and *vice versâ*—we all, I am sure, wish the new departure every success. Personally, I have never hitherto been very favourably disposed towards short service in the Royal Navy, because it has in the past seemed inadvisable to tamper with a system which has worked so well since its introduction in 1853, and has provided us with such a splendid *personnel*, and also because I have always been sceptical as to the men trained in the fleet, when transferred to the Reserve taking kindly to life in the Mercantile Marine, their availability for employment in our merchant ships being one of the prospective advantages usually held out by the advocates of change. But, as I have already said, it is manifest that the country cannot maintain permanently in time of peace the enormous *personnel* that will be required in time of war, and we are all well aware that, owing to the falling off in the supply of European British-born subjects in the Mercantile Marine, that service is no longer in the position that it once was in to largely help in solving the problem of how to maintain a large Naval Reserve, and so some modification of the plan which has obtained of late years seems to be unavoidable. Up to the present time, our mail steamers and other first-class steamships have been principally manned by British subjects, and so Reserve men from the Royal Navy were hardly required for the purposes of those vessels, and I have always been of opinion that these latter persons, while being very willing to engage on board the liners and similar craft, would most religiously avoid our long voyage merchant sailing-ships and tramp steamers—that, is, under existing conditions Of course, if those conditions were improved, as they should be, that objection would fall to the ground. However, owing to the constant decline in the number of European British-born subjects in the Mercantile Marine, and particularly in certain ratings, it is open to question as to how long the supply will be sufficient for even our mail steamers, etc., without drawing upon foreigners, and foreigners who have been naturalised, who are equally open to objection; and in the event of further shortage, the non-continuous seamen of the Royal Navy, as they are now termed, would no doubt welcome, and be welcomed in, such employment. Again,

it seems to be the opinion of the Naval Reserves Committee—and I think it is one which you, Sir, personally share—that after the completion of training in the fleet, it is more or less immaterial whether the short service men transferred to the Reserve continue to follow the sea or enter into shore employment, always provided that they undergo periodical gunnery drill and are embarked for occasional cruises. If it be true that the nature of this after employment is immaterial—and viewed in the light of the preceding remarks—an extension of the short service principle would seem to be inevitable. There are one or two special points in the lecture upon which I should like to say something. For instance, I notice that in one place the lecturer states that 11,000 out of the total number of Royal Naval Reserve men enrolled may be said to be fairly well trained, the natural inference being that the others are not; and I should like to know how he arrives at those arbitrary figures—in fact, upon what principle he separates the sheep from the goats. All classes of the Royal Naval Reserve—with the exception of stokers, who only drill for fourteen days annually after their first year of enrolment, when they have to perform twenty-one days, and a small number of probationers, who do not receive any instruction whatever—are required to undergo the same amount of drill yearly, although it is true that certain of the men have been embarked for training in the fleet, and so presumably are better up in their work than are those of their fellows who have not enjoyed the same advantages. The lecturer also remarks that the merchant sailors and firemen at present enrolled in the Royal Naval Reserve will be urgently needed in the Mercantile Marine in time of war. There is no doubt but that this will be the case, and the necessity for taking adequate steps to increase the supply of British-born merchant seamen for both commercial and naval exigencies has been put forward over and over again in this Institution. But the fact remains that the Admiralty possesses the power to call upon the members of the Royal Naval Reserve to fulfil their obligations to the State, and will very properly take them from their ordinary vocations, and the shipowners will have to man their ships as they best can; and if those gentlemen experience great difficulties in so doing, they will have nobody but themselves to thank for not having exercised reasonable foresight during many years of peace. At the same time, the gravity of the position to the country must not be overlooked. With regard to the representation made by the Naval Reserves Committee, mentioned by the lecturer, as to the manning from the Royal Fleet Reserve and the Royal Naval Reserve of all subsidised vessels, I may mention that I made a similar suggestion in this theatre some years ago with respect to transports taken up by the Government under normal peace conditions, and I understand that this practice is carried out to a limited extent at the present time. While speaking of the recommendations of the Naval Reserves Committee, it may be of interest to point out that in the February *Navy List* the names of two Royal Naval Reserve Warrant Engineer Officers appear for the first time.

The CHAIRMAN (Admiral the Hon. Sir E. R. Fremantle):—Had we none before?

Commander CABORNE:—None whatever; it is a new departure, taken at the instance of the Naval Reserves Committee.

The CHAIRMAN:—I thought we had some engineer officers.

Commander CABORNE:—We had 400 commissioned engineer officers, but no warrant engineer officers; it is a new rank. In the same way the

grade of Artificer Engineer has been introduced into the Royal Naval Reserve, and I understand that the prospects of getting a satisfactory supply of suitable candidates are very encouraging. In conclusion, the lecturer says he is afraid that the Royal Naval Volunteer Reserve will in a measure interfere with recruiting for the Royal Naval Reserve, at any rate in some of the smaller ports; but I do not share that fear, for the simple reason that Royal Naval Reserve men receive pay and allowances when on drill, are paid annual retaining fees, and in process of time become eligible for pensions. On the other hand, the Naval Volunteer Reserve men are unpaid, except when called out for active service or undergoing special courses, and only a capitation grant is made to them, the amount of which is absorbed in the funds of their respective companies or divisions. Under these circumstances I do not think that the class of men who are now enlisted in the Royal Naval Reserve will be inclined to throw away manifest advantages—in other words, to grasp at the shadow and lose the substance.

The Marquis of GRAHAM (Commander of the Clyde Division of the Royal Naval Volunteer Reserve) :—I regret, owing to the vagaries of the Post Office, I only received this paper this afternoon, and therefore have not had time to consider it, but there is one thing I may do, and that is associate myself with all present in gratitude to the author for his very able and lucid paper. I am glad to hear Mr. Jerram say that this problem of manning the Navy is one of the most important of our time. There can be no doubt that it is so. I notice one of the reasons why he believes so is owing to the great wastage of both men and ships in war. He quotes the Naval Reserves Committee, who pointed out that the wastage of ships would be probably out of proportion to the wastage of men. This has been proved more or less during the present war in Japan. There is one point which should be carefully noted, and that is that men have not been merely lost and placed out of action by shot and shell, or the sinking of their ships, but that when the ships sank some of the men took refuge on neutral ships and shores, and were handed over to Russia on the condition that they would never fight again in the present war. So that there is a probability that after a great action men might be rescued by neutral ships, or take refuge on neutral shores, and be restored to this country on the promise that they would not take up arms again during the war, and so rob us of a source of manning to which we might have been looking for the manning of our reserve ships. The author has referred to the establishment of Naval Volunteer divisions. As one of the commanding officers of one of those divisions, that of the Clyde, I am very glad to see that he regards that as being a practical part of the fighting efficiency of the Navy. While the Naval Forces Act of 1903 provides for the establishment of 30,000 Naval Volunteers, we shall never get 30,000 Volunteers unless Volunteering is treated with greater liberality than at present by this country and its people. Our Naval Volunteers have been treated with generosity, so far as generosity in Parliament and the Admiralty is concerned, but there is no generosity towards Volunteers by the country as a whole. Volunteers like everyone else are taxpayers towards our National Defence, but, beside that, they give their time free to the service of their country; and then, because they are Volunteers, they are expected to put their hands still deeper in their pockets and pay for the rents of their drill halls, their railway journeys, their travelling by tram or 'bus, and even for the ammunition which they fire. That is not generosity. If a man is a Volunteer and drills to save his country

conscription, he should be treated with generosity as part of the Reserve forces, and the other people who do not serve as Volunteers should pay unr' 'rvedly for his Service expenses. As an illustration, take my own men. I have 80 per cent. of them working men—boiler makers, rivet makers, and ship builders. Many of them are ex-seamen. They pay between 2d. and 5d. a night in tram and ferry fares to reach their drill hall, and beyond that they have to pay eighteenpence in order to travel down to get some boat exercise. If this country looks to 30,000 working men to volunteer for service in the Navy, they will be disappointed, unless they are willing to treat Volunteers as part of the Naval Reserve and with the generosity which they deserve.

Commander W. C. CRUTCHLEY, R.N.R. :—I have not had an opportunity of studying this paper very closely, but the general impression I have gathered is that it is a most excellent one, and I would quote almost the end of it as a text for the few words I want to say on the matter. I am speaking simply on my own behalf, and not on behalf of anyone else. The author says that :—"The problem of the Naval Reserve is incomparably the most important Imperial problem of the day, and that on its right solution may depend the existence of the Empire." I submit with all consideration that this question touches most closely the Mercantile Marine. The Mercantile Marine in the days of our great sea fights was largely the source upon which the Navy depended for men. In fact, the men were interchangeable between the Navy and the Mercantile Marine. I do not know that conditions have altered now in such a way as to entirely differentiate the present from the past. I think that the Mercantile Marine man of to-day is as capable of learning gun drill as was his predecessor in the days of Nelson. To turn to France, which the lecturer has mentioned. That country has not the same maritime interests that we have, but they find it necessary to train every man to the use of arms that adopts the sea as a calling. The entire maritime population is enrolled in the *Inscription Maritime*, and that means that everyone plying his calling as far as the head of tidal waters is enrolled in the fighting forces, and is trained to be a fighting man. I submit that for a maritime nation such as Great Britain and her colonies, all the men that go to sea for a calling should be also trained as fighting men, and I can see no reason why they should not be. It would improve the *moral* of the men, and it would add a source of strength that we at present seriously lack. My friend, Commander Caborne, has dealt with one point that is often raised as an argument against this, and that is, that if you take the crews from merchant-vessels in time of war there will be a difficulty in manning such vessels. I do not think that is at all a valid argument, and I feel confident you will endorse my words when I say that a man who has the habit of the sea would be the better fighter at sea than any man who did not follow the sea as a calling. The habit of the sea is no small thing when you come to indulge in naval warfare. With regard to the men to man the merchant-vessels, I admit that dock labourers or stevedores, or people of that description, would be quite competent to do the ordinary work of merchant-vessels or mail steamers under the stress of war. If the ships were left with their masters, officers, and engineers, the mere rank and file would not matter very much. Last time I had the honour of speaking at this Institution I used some very hard words on this question of training, and I meant to use them. In reading to-day's *Times*, I have come across just one slight glimmer of hope. This is the first thing I have

seen for at least the last five years that has given me any satisfaction in connection with this training of men. I refer to the answer given by the President of the Board of Trade to Sir Charles Dilke, that staunch supporter of seamen, who asked :—"Whether, in view of the supply of boys willing to go to sea, effective means for their doing so could be provided," and Sir Charles further asked what steps it was proposed to take to give effect to the eleventh recommendation of the Board of Trade :—"That every encouragement should be given to training-ships and to the training of boys on merchant-vessels with the object of increasing the number of British seamen in the Mercantile Marine." The answer to that question was as follows :—"The Board of Trade have commended to the consideration of the principal associations representing British shipowners the recommendation of the Mercantile Marine Committee of the Board of Trade, and with the co-operation of the other departments of the Government interested in educational matters in the United Kingdom, they have arranged for the circulation of a memorandum inviting local educational authorities to give their assistance and encouragement to training-ships." It appears to me that if there is anything at all in that, it means the dawn of a new epoch, and that something is going to be done by way of extracting technical education money for the education and training of sailors. If that is the meaning of the President of the Board of Trade, I think that the lecturers at this Institution and other people can congratulate themselves at last upon having effected something.

Mr. Charles S. Jerram, in reply, said:—I think I have detained you long enough this afternoon, and I confess I am somewhat surprised to find that there has not been so much opposition as I expected to certain expressions in my lecture. I thought that the expression "short service" would have created more objection than seems to have been the case. I do not think it is really necessary for me to say more than that I most heartily endorse what Commander Crutchley said just now with regard to devoting, at any rate, part of the technical education money to the establishment of training-ships, and I should like also to say that I am fully in agreement with Lord Graham's remarks about the expenses of Naval Volunteers. I recollect perfectly well that when a young man, and not very well off, I would have joined the Volunteers if I could have afforded it. I was ready to offer my services to the country, but I could not afford it. I think it is hard when men are prepared to offer their services as soldiers or sailors that they should not be supplied with what is necessary. I thank you all very kindly for the way in which you have listened to the lecture. I am a layman, but I have been intensely interested in the subject of the Naval Reserves for many years past, and I hope you will not consider what I have said conceit in any way. I seriously believe it to be the most important public question before the Empire at the present time.

The Chairman (Admiral the Hon. Sir E. R. Fremantle, G.C.B., C.M.G.) : — I was very glad when the lecturer asked me to preside at this meeting. I need not tell most members of this Institution that this is a subject which has interested me for a long time. I gave a lecture practically on a similar subject in 1891, and I gave another lecture on the subject in 1902, which I called "A Reserve for the Navy from the Navy," in which I advocated that there should be some sort of short service to the Navy, principally

on two grounds. The one was financial, and after all we must consider financial questions, and if we continue long service and keep on increasing the number of long service men, the pension list gets very large; and I think I represented it rather in this way: that the long service system would begin to be an octopus, stretching out its tentacles everywhere, and we should eventually cut down the expenses and become very stingy in our shipbuilding work. I hold to that now. The other ground upon which I argued was that it was a good thing. I think it was Admiral FitzGerald who gave us the illustration of a certain fable of the dog and the bone. The dog had the bone in its mouth and dropped it because he saw the reflection of the bone in the water, and thereby it lost both. I told him that I did not think the bone was big enough, and that, if the bone was not big enough, it would be necessary to try and get another one. If it were possible to get another bone as well, without dropping the first into the water, I think it would be an advantage. With regard to my lecture of 1902, I obtained very little support from naval officers. After the lecture a gentleman said to me as I went into my club: "I am afraid, Sir, you did not get much support for your lecture." I said: "None at all: but I will tell you what it is. The Admiralty will see the points of it, and are very much more likely to do it than you seem to think." That very year they introduced a limited amount of short service—1,000 men. Lord Selborne says that the non-continuous service men, as he calls them, which is a very long name for a short thing, as the lecturer says, will be all entered this year by the end of the financial year, and he will do the same next year. I had rather hoped he would have doubled the number this year. There is nothing like *festina lente*, and if we advance in the right direction I for one am satisfied. I am not quite satisfied, because we have increased the standing Navy by 4,000 this year, up to 131,000. When I read my lecture it was 122,000, and I told them they were going on, and that we should shortly come up to 150,000 before many years had elapsed. Sir Charles Dilke said then: "I think the Admiralty are hopeful that in a few years' time they will have a sufficient Fleet Reserve." All I can say is that the Fleet Reserve is almost precisely the same now as it was then. The estimate for the "Fleet Reserve" in 1902 was 10,500, and though no doubt the Admiralty have made great endeavours to increase the Fleet Reserve, and Lord Selborne takes great credit to himself for having a Fleet Reserve, it is now 8,375 men. Therefore, I am afraid we have not advanced very much on the question of Reserve. There is a question which has been raised before, and which the lecturer has raised again, as to the naval wars in future: whether ships will perish out of proportion to the men, or *vice versâ*. Now, at first sight that appears likely to be the case. We have an illustration at present in Port Arthur, where I have very little doubt there are a great many more men than ships; but you must not take Port Arthur. How about Japan? What are the number of men they have at sea at present? We hope to command the seas, and not to be shut up in our ports. If we are shut up in our ports, no doubt there will be more sailors than ships; but I think if we are to keep the seas the thing will be very different. I think we shall find that the Japanese Navy has increased enormously. I can only give you the numbers as they were in the War of Secession between the Northern and Southern States of the North American Union, when the numbers increased from 7,000 to 51,000. In the last American war with Spain, although there was practically no Spanish Navy at all, or none to speak of, the numbers jumped up in the American Navy from 12,000 to 24,000 almost at once. My conception of

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the situation is that if we command the seas we shall have ships in every sea, not half a dozen ships, but we should at once increase them with all sorts and descriptions of ships, and in places where we now have 10 ships we shall have 20 or 30—not necessarily all of them hard fighting ships, that is to say, big ships or even big cruisers. When you are engaged in any sort of warfare the stress and strain are very considerable, and sickness is consequently very considerable too. That, I think, is not taken into consideration. If you lead a hard life, generally speaking, you find you get sick, and we have to lead a hard life in war time. With regard to trained men, I was accused of trying to take away the Navy's birthright by introducing something in the way of short service. We should be a little particular about our terms and about what we mean by them. I used the term "short service" because it was shorter service than we have at present; but you know that the short service which I propose is as long as what the French call long service. The French Navy is supposed to be very well manned, and I understand that the French Navy is manned half by Reserves and half by what they call long service men, and those long service men serve seven years in the French Navy. I suggested that our short service men, of which I only proposed a certain proportion, should serve seven years. Therefore I should have a double advantage over the French. The French have longer service than the Germans or Russians or any other country except Great Britain. Therefore you will see there is a great deal of nonsense talked about this matter. There is nothing sacrosanct in 10 or 12 years. The question is whether it is a reasonable amount. It is not possible to compare it with short service in the Army, where the circumstances are entirely different. It is quite certain that when a ship goes to sea she does not go to lie at Hong Kong as a regiment does for a period of 7 or 8 years. I do not approve very much of employing soldiers as sailors. I cannot help thinking that we ought not to have too many soldiers on board ship, and that those soldiers ought to be trained properly to fight on land, although it may be a reasonable make-shift to take them on board ship. At St. Vincent we had them, but it was only a make-shift, and make-shifts are not satisfactory. We should provide beforehand for exactly what we want. We certainly might have a certain number of regiments called Marine Regiments. The Bombay Marine used to serve afloat, and they are a Regular military regiment. If that is to be done, there are certain regiments which ought to be regularly trained for that service, though I do not think it is a very good idea myself. My own opinion is that sailors ought to do sailors' work, and soldiers ought to do soldiers' work. I quite agree that you can make a very fair sailor in six months' time, always supposing that you have the real nucleus of well-instructed and well-skilled men on board ship, and a sufficient number of skilled officers, too. As a great deal has been said, and very properly said, with regard to what was stated by the Committee, over which Sir Edward Grey presided, I should like to make one or two remarks on that point. In the first place, a Committee only reports in accordance with the instructions which it has received. They were circumscribed in the instruction, and they were only allowed practically to make suggestions in a sort of palliative way; that is to say, they were not allowed to propose anything very drastic, and therefore we had a report with a good many comparatively small suggestions. At the same time, those suggestions were very good, but I do not think they have as yet, at all events, been carried out. The author says:—"In order to increase this invaluable Reserve, the Committee proposes that in future a quarter of all ordinary seamen and A.B.'s (trained

men) shall be non-continuous service men." We have got at present less than 1 per cent., which is not quite a quarter—we have really 1 in 130. Perhaps it is intended by the Admiralty to gradually bring them up to the numbers proposed by the Committee; I am not saying that is not so. With regard to the question of the amount of training that men require, I can only give my own experience. When the "Northampton" was introduced, taking youths of 17 and training them for 6 months, and then sending them straight to sea-going vessels, instead of taking boys of 16 and training them for a couple of years and sending them to sea, I was not very much in favour of it. I thought we should make a very scratchy sort of sailor; but I am bound to say it answered very well. No one knows better than Captain Jerram, the brother of the lecturer, because he had charge of one of the "Northampton" training ships, and I saw him several times at Plymouth, and on the whole I thought the training was very satisfactory. I had to inspect ships on paying-off, and I have several times ordered all the "Northamptons" under that special training to fall out to one side of the ship, and I could not see much difference between the two bodies of men; they seemed to be very much the same. I have said to the captain: "Have you found any difference between them?" "To tell you the truth, Sir," he said, "I did not know which were 'Northamptons' and which were not." He pointed out to me a good-looking young fellow, and he said: "That fellow is the best we have got, and he was a 'Northampton.'" Therefore, if it is so absolutely necessary to have them so long, I think it is difficult to account for the fact that the captain when he was on board ship did not know one from the other, and that the best man on board his ship was one who had been in the "Northampton." I should like to say, also, something about what Lord Selborne told us at the Navy Club. In the Navy we are very much wedded to the things we have, and it is very natural. But Lord Selborne told us a story at the Navy Club—there were no reporters present, but I suppose it is not a great secret, he said: "I daresay nearly all of those who are listening to me here will be of opinion that one of the great advantages we have in the present Navy, and one of the things which we should be most sorry to lose is the long service system." He continued: "Perhaps it will astonish some of you that I have got a sheaf of letters sent to me by Lord Northcote the other day, letters which had been written by distinguished naval officers of that day to Sir Francis Baring, his father, who was then first Lord of the Admiralty, and these distinguished naval officers had heard that it was proposed to have this long service or continuous service, and they one and all said that would be the ruin of the Service, that the Service would go to the dogs if long service was attempted, because they might have bad people and not be able to get rid of them, and all sorts of things." That was the opinion of the day. They had been brought up in one school, and they did not understand that it was possible to make any change. Commander Caborne said that men in the contract ships would be in the Naval Reserve, and I hope they will adopt that.

Commander W. F. CABORNE:—They have done so to some extent.

The CHAIRMAN:—We are very much obliged to Lord Graham for speaking on the subject. I will not touch on the question of the pay of the Volunteers, but I certainly think if we are to have Volunteers at all, they ought to be paid their expenses, to say the least of it. He spoke of the question of wastage of men in ships, and I am glad he agreed with

me. The question of the neutrals I think is a very apposite one, and we shall have that question arising occasionally. If a ship is sunk or nearly sunk and escapes into Lisbon, or somewhere like that, and that is a neutral country, and they insist at once upon these men being returned with promise not to serve again, they will not be available for the rest of the war. I rather agree with what Commander Crutchley said. If you will read some old documents of about the time when war was declared, you will generally see that in the seaports the rate of wages went up very largely for seamen, because of the hot press for the Navy. Longshoremen increased exceedingly, and even some people who had not seen the shore at all before came to the sea-ports, and the shipowners were glad to take them to man their vessels. In these days of steam we know shipowners do man their ships very often with anybody they can pick up, and therefore if we take away the Royal Naval Reserves I think the shipowners will be able to man their ships, and it would increase the number of seafaring men or nominal seamen. In your name, gentlemen, I thank the lecturer for having brought this subject forward to-day. Anybody who sees the great increase in the Navy Estimates and the prospective increase, and who has an intelligent appreciation of the cold fit which seems to be rather inclined to come—although the Naval Estimates were carried by very large majorities the other night—will see that we ought to endeavour to run on rather economical lines. We generally look to the Germans as being long-sighted and as having studied questions thoroughly, and it is interesting to note that they are not afraid of short service. They were not afraid of short service in the Army, and they are not afraid of short service in the Navy. I do not know exactly the whole of their system, and I do not say that I desire to follow them entirely; but you may depend upon it that when they have adopted, as I believe they have, a system of shorter service than the French, they must think that they can keep their ships efficient and complete and in a good state of discipline even with short service. I think that ought to make us pause. When we have to deal with certain things, I think it is very often advisable to look to new countries, especially if they are well educated and intelligent, and see what is going on there. The Japanese looked round for what was good in the naval service. They came to England, but they did not adopt all our principles, and where they have not adopted any principle I think you may have some doubt as to whether that principle was correct, and consider whether it should not be altered. The whole subject is one on which I feel very deeply, and, as I have said, is one of the greatest importance, and I can only say that I am very glad it was brought before us to-day.

THE LESSONS OF THE BOER WAR AND THE BATTLE-WORKING OF THE THREE ARMS.

A Lecture delivered before the Berlin Military Society, on 30th March, 1904, by Major BALCK, of the Great General Staff.

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Continued from November JOURNAL, p. 1287, *and concluded.*

II.—THE ARTILLERY.

THE English Field Artillery failed to meet the demands of the time and the South African theatre of war, for although the 12-pounder was sufficiently mobile, its effect was small. Among the disadvantages of the shrapnel—the principal projectile used—was the very small effective spread of the bullets on bursting; the fuses, only good up to 3,060 yards, were untrustworthy, so that it was difficult to time the bursting of the shell at the right distance from the target. Such a projectile was quite inadequate against the deep rifle-pits of the Boers. The ballistically good 4·7-inch field howitzers were quite too few in number, owing to the extent of the battle-fields, to be of value. The difficulty of locating the exact fighting positions of the Boers impaired their effectiveness. Both at Colenso and Magersfontein a considerable amount of ammunition was expended against positions which were not occupied by the Boers at all. In the further course of the war, when this gun had become more popular with the troops, single howitzers were attached to the gun batteries of the flying columns. The lyddite shells, which had not given quite satisfactory results, were during the campaign partly replaced by shrapnel; as regards their efficacy in high-angle fire, nothing, however, is positively known.

The training in shooting against fixed targets at near ranges—the peace practices being carried out at from 1,300 to 1,900 yards—was satisfactory.[1] The artillery had no training in making out, firing at, and observing objects difficult to distinguish at long distances. In

[1] Captain Trimmel, of the Austro-Hungarian General Staff, who was Military Attaché with the English Army, in his remarks on the shelling of the Boer positions at Paardeberg, writes:—"The cases of the shrapnel testify to the accuracy of this fire, for they covered the ground from five to ten paces on both sides of the Boer rifle-pits." The effect of this fire on the well-protected enemy was practically *nil*.

the Instructions, distances of from 2,300 to 3,200 yards were described as long, while effective fire range was given as from 1,350 to 2,750 yards.

Shortly before the battle of Colenso, an artillery officer of high rank, who was acquainted with the ballistic superiority of the Boer guns, expressed his opinion that the guns ought to be moved up rapidly to within 450 or 600 yards of the enemy. As the Boers at Colenso only opened their fire at close ranges, two of the English batteries were able to do this; they unlimbered some 1,100 yards from the enemy's rifle-pits, fired away, approximately, the whole ammunition in their limber boxes within an hour, then ceased firing, and were finally left on the ground by Buller, after several attempts had failed to bring the guns in by means of fresh teams, only two being successfully limbered up and recovered. The losses of the two batteries were, however, small, amounting to only five officers and thirty-four men. Such an advance of the guns became, however, impracticable, when the Boers adapted the greater range of their guns to the extreme effective limit of their fuses, and moreover brought up still heavier flat-trajectory guns. Complete advantage, however, could not be taken of the ballistic superiority of these guns, owing to their limited number, the occasional ineffectiveness of the fuses, and the want of training on the part of the men who worked them. The English were compelled, nevertheless, to draw upon their fleet for more effective flat-trajectory guns, which, mounted upon improvised carriages, were drawn by 28 oxen. These guns supplemented the fire-action in a most satisfactory manner, although they had been originally constructed for quite other duties and it was quite the exception when the Boers offered a target for flat-trajectory guns. Against shelter-trenches their effect was very insignificant.

For the Boers, however, who from the very first stood upon the defensive, the employment of heavy flat-trajectory guns was exceptionally suitable. They developed a perfectly astonishing skill in getting their guns into position on the top of steep heights. Thus, on the 6th February, 1900, a long 5·5-inch gun was moved from its position before Ladysmith to Vaal Krantz, some twenty miles distant, and placed in position upon a steep crag at Doornkloof; on the 8th the gun was back again in its old position before Ladysmith. As the result of these performances, the English military authorities have determined to form the corps artillery of an army corps, of three batteries of horse, three of howitzers, and three of heavy flat-trajectory guns.

The employment of machine guns—pom-poms, of 37-mm. calibre, which fired away sixty 1-pound shells a minute — gave even less favourable results. The first great impression which they made on man and horse soon vanished when it was found the losses they inflicted were insignificant. For their moral effect, 53 pom-pom sections[1] of two guns each were finally attached in the English Field Army. At present every cavalry regiment is supplied with a pom-pom.

[1] "The pom-pom makes a horrid noise while working, and it may exercise a demoralising effect upon the enemy. But there its virtues are exhausted, for its performances are *nil*. For want of better weapons we were obliged to consider ourselves at least lucky if we possessed a pom-pom. We made a noise with them, in order to distract the attention of the enemy."—Ben Viljoen, "In Battle in South Africa."

In consequence of their numerical weakness in guns, the tactics of the Boers were prescribed from the very first.[1] As the result of the superiority of the English artillery, only a portion of it could be opposed, while the remainder, undisturbed in its fire delivery, was sometimes able to deprive the Boers of any success they might have won. The guns engaged in fire-action against the English batteries from positions which were continually changed, and only at such ranges where no decisive result could be immediately looked for. If the English came nearer, the Boers ceased firing, but the guns remained under cover ready to take advantage of any mistakes.

It was only in the fighting on the Upper Tugela that the nature of the country was of any particular assistance to the Boers. The river valley was so broad that the English batteries were compelled to leave the edge of the valley itself and drive down into the lower ground in order to oppose the Boer positions, which were some 300 feet above them. Owing to the difficulty of observation, the effect was naturally very small. So it came about that on the 5th February, 1900, four Boer 12-pounders did not hesitate to accept battle with 42 English guns, at a range of from 3,500 to 4,000 yards, their greater rapidity of fire making up for their inferiority in numbers. Nevertheless, the English artillery only lost seven men during the two hours' action, although the report spoke of a hellish hail of projectiles, which burst over the batteries. They were, nevertheless, able to limber up and carry out a flank march—the best proof, perhaps, that the working of the Boer artillery was not as efficient as it might have been.

With the exception of the first battles in Natal, the guns were continually used singly in well-placed and well-marked gun-shelters. By means of these tactics the Boers could gain time, but could never effect anything decisive. Only by transferring supervision from one gun to another, or the grouping of guns in batteries, can rapidity of action be attained by field artillery; only the uniting of several batteries, according to space, guarantees a close supervision and concentration of the fire. All this the Boers gave up, for they said rightly that their guns would be exposed to certain destruction in a regular artillery duel, and it would be impossible to replace them. This limited them to an unfavourable defensive action, and also required an early withdrawal of the guns.

But the English artillery in no way showed itself sufficiently powerful to compel the defenders by its fire alone to vacate

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[1] Proportion between the number of guns on both sides :—

Talana Hill (19th October, 1899)	4 : 18	
Elandslaagte (21st October, 1899)	2 : 18	
Ladysmith (30th October, 1899)	16 : 40	
Modder River (28th November, 1899)	9 : 22	
Magersfontein (10th December, 1899)	10 : 33	
Colenso (15th December, 1899)	5 : 44	among which were 14 heavy guns.
Spion Kop (20th-27th January, 1900)	6 : 60	
Vaal Krantz (6th February, 1900)	7 : 60	
Pieter's Hill (23rd-27th February, 1900)	10 : 70	
Paardeberg (18th February, 1900)	8 : 24	
,, (19th-27th February, 1900)	6 : 91	
Driefontein (10th March, 1900)	16 : 30	

their positions; it always needed the co-operation of the infantry. Thus the bombarding of positions for days before the attack itself was quite useless, as no attempt was made by advancing infantry to compel the Boers to hold them. An immense amount of ammunition was expended, as the Boers offered no target, and it only served as a warning to them to prepare for an attack. The artillery fire in the attack itself was more successful, as it compelled the enemy's guns to cease firing, drove them under cover, and enabled the English infantry to approach close to the enemy.

In most of the actions the English artillery committed the fault of ceasing fire too soon, so that there was nothing to prevent the Boers from directing their whole fire upon the storming infantry. This is always a great deal worse than the chance of a shell falling short and bursting among the infantry. At the storming of Pieter's Hill, Colonel Kitchener said to his gunners that he would not find fault if two, or at most three, of their shrapnel shells burst short.

Already, during the campaign, a demand had been made for longer burning fuses, and a more extensive use of high-angle fire guns; the necessity for a more thorough reconnaissance of the position and objective was emphasised, and the permanent provision of an escort for the artillery.

The disadvantages which resulted from the increased difficulty of observation are, in part, to be traced to the peculiar nature of the theatre of war, where the refraction of the sun's rays, which was almost regularly observed between 9 a.m. and 6 p.m. in the summer, and the uniform appearance of the battle-field, made the discovery and determining of objects difficult.

Telescopes with lenses made of cobalt-blue glass were useful in order to make the flash from the guns using smokeless powder more visible. There was a disposition at first to copy the Boers in the use of single guns. The necessities of attack, however, soon counteracted this. Some justification for the practice may have existed when on the defensive, although the difficulty of combining fire upon important points must be recognised, and a good deal of ammunition would be thrown away through firing with every gun singly. On the other hand, it would be advantageous to practise firing every gun in the battery singly, transmitting the elevation and length of fuse to the whole battery; also, only to allow so many guns to be fired as are required for attaining the desired end.

The principal lessons which the English artillery drew for the carrying out of the attack from the South African War correspond in the main with the views laid down in our Regulations for an attack upon an enemy deployed in a position prepared beforehand. Special reference may be made to single points. The use of heavy guns may be of advantage in making it possible for the field batteries to approach within effective range. The attack requires primarily high-angle fire guns; the defence, flat-trajectory guns.

A disconnected artillery preparation and an independently carried out infantry combat are both to be condemned; the two must go hand-in-hand. The advance of the infantry must compel the defender to man his position, and thus to offer a target for shrapnel fire. The communication between the infantry and artillery can be very suitably maintained by the signallers of the latter provided with

hand-flags.[1] In the fighting on the Upper Tugela, reports in this way from the men watching the effect of the firing, as also the wishes of the infantry, were conveyed to the firing batteries. At Colenso this was neglected to the detriment of the effectiveness of the artillery fire.

An accompaniment of the infantry attack by a change of position is no longer considered necessary by many artillerists in England, as the accuracy of the guns has materially increased. Against an enemy like the Boers this may not have been necessary, but in Europe the infantry, hurriedly brought together, after penetrating into a position, would not willingly dispense with the support of rapidly moving artillery, should the enemy advance to the counter-attack. It is only necessary to call to mind what took place during the fighting at Elsasshausen. During the attack on Talana Hill, the English batteries remained in the rear; fired finally into their own infantry, which had won the hill, and compelled them to fall back.

It must, at all events, be insisted upon that the artillery should continue to fire as long as possible over the infantry advancing to storm; several times has it happened that single shrapnels have burst close over, or even among, the advancing troops. At Bergendal (28th August, 1900) the last shells fell 45 yards from the storming infantry into the enemy's rifle-pits, so that those who manned them were completely surprised by the attack. It was impressed upon the infantry that they must advance until they could smell the reek of the lyddite shells. The English artillery seem here to have supported the advance of their infantry over a plain devoid of cover in a manner worthy of imitation. By a skilful combination of high-angle and low-trajectory fire, the defenders were forced to keep down under cover, while the infantry advanced to a successful direct frontal attack over the open plain.

III.—The Cavalry.

In contrast to the English cavalry, we find a really mobile Mounted Infantry, on serviceable horses, who, nevertheless, avoided all active scouting, contenting themselves with acting as a purely passive screen. Such outposts cannot, however, prevent a mobile enemy, who are in sufficient strength, and who can fight equally well on foot and on horseback, from making use of their eyes. To bold scouting on the part of the enemy, only the offensive can be opposed, and to this end his cavalry must be attacked. For this the chances would not have been unfavourable, as the mobility of the individual Boer was neutralised by the want of initiative of the leaders, and the clumsiness of the baggage-train accompanying the Boer commandoes. If the English cavalry, with but few exceptions, failed to rise to the demands made upon them, the fault lay with the system under which they had been trained, and because the horses could not stand the strain and stress of the campaign.

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[1] At the attack on Monte Christo (27th February, 1900), a howitzer battery, stationed some 7,200 yards from the rifle-pits of the Boers, received orders, as a preparation for the attack, to fire lyddite shells from 5.30 a.m. to 6.15 a.m. When the battery ceased firing, the infantry were still too far off, and they received orders by heliograph to open fire again from 7.30 a.m. to 8 a.m.

The English cavalry entered on the war trained in a one-sided way for offensive tactics, without, however, having been taught how to cover long marches at a round pace, carrying their kits. To dismounted fighting only the smallest attention had been paid, as in former campaigns this had been, to a great extent, the work of the mounted infantry, the raising of which in the coming war had been foreseen. In the military press, attempts were made to draw a sharp distinction between the duties of the cavalry and those of mounted infantry. Not undeserved was the reproach that the initiative of both cavalry officers and men had been but little developed, and that, although there had been plenty of time, which had been devoted in peace to stable duty, the instruction in the care of horses had been quite inadequate.

In bad condition after a twenty to thirty days' sea voyage, the first regiments, which had been, comparatively speaking, embarked late, reached South Africa in December, 1899, where the summer weather was at its heigth. Time to recuperate could not be given the horses. The unfavourable reports arriving from all parts of the theatre of war called for the immediate despatch of regiments to the front. Difficulties were already being encountered in providing oats, while it was only slowly that the horses accustomed themselves to the wild grass with which the dry steppes were covered. The load the horses had to carry, some 145 kg. (319·68 lbs.), proved far too great under these conditions.

The regiments, which had been longer in South Africa, had also not begun the campaign well. On the 19th October, 1899, at Talana Hill, two squadrons of cavalry and a company of mounted infantry, which had been moved against the rear of the retreating Boers, having lost their way, had thrown themselves into a farm-yard, where they were surrounded and compelled to surrender, while the successful attack at Elandslaagte may be set off against the failure at Ladysmith on the 30th October.

The first impressions which the troops received on their arrival in South Africa were not favourable for developing fighting efficiency. The steep kopjes, the country often covered with boulders, and then the thin firing lines, all tended to make attacks difficult. But if it was not thought desirable to ride down the skirmishers, would it not have been possible to disperse the Boers' led horses? All reports emphasised the difficulties of every attack, and spoke of the unexpected effect of the long-range fire. We can quite understand that it is not yet realised how infantry which had remained—as, for example, the Guards at Modder River and the Highland Brigade at Magersfontein—for hours together in a burning sun, with their nerves on the strain the whole time, must necessarily lose just those qualities which from all time have turned the scale in resisting cavalry attack. The infantry in these actions were completely worn out, although the material losses had been only slight; for troops in that condition it is quite immaterial whether they carry a flint-lock or a magazine rifle—they are the certain prey of an energetically-led cavalry. For ten hours the Highland Brigade remained at close range; nor for hours past had it been in a position to advance. But when by the swinging back of one wing a defensive flank was formed, the whole line fell back without orders—a movement which was hastened by the bursting of a well-directed shrapnel shell. Troops unnerved as they were could certainly have offered no resistance to a serious cavalry attack.

Because favourable chances were not seized, or because they could not be taken advantage of in consequence of the bad condition of the horses, it does not, however, follow that the days for the effective employment of cavalry in action are past. On the contrary, with the increased tension of the nerves in battle and the difficulty of bringing down a charging horse with our small-bore rifles, the chances of cavalry for making a successful attack on infantry have increased rather than diminished. Under the stress of events, a cool level-headed leader of sound tactical judgment is needed in order to make this clear.

Such a leader the English Army possessed in the person of Colonel French, who, 47 years old, had commanded a cavalry brigade in England, escaped at the right moment by the last train from Ladysmith before the investment, and was appointed to the command of the Cavalry Division, with the local rank of lieut.-general. Cavalry leaders cannot be selected for their seniority. The English Army possesses the means of bringing junior officers into the higher posts by conferring upon them local and temporary rank. Thus colonels were appointed brigade commanders with the rank of major-general.

It was first necessary to re-organise the Cavalry Division; all cavalry detachments within reach were called in, even the infantry divisions being deprived of their squadrons. The brigades were first assembled two days before the commencement of the march on Bloemfontein, and some units even joined during the advance. The division was only a loose concentration of units, without internal organisation. No opportunity had occurred for moving the division once as a united force. General French rightly complained later that leaders, staff, and troops, had no mutual knowledge of each other, and he has pointed out that cavalry divisions, if they are immediately to begin work, on the breaking out of war, must have been already formed in peace.

The division consisted of three brigades of twenty-four squadrons, with seven horse artillery batteries. To the division troops were also attached light companies of mounted infantry, a detachment of mounted pioneers, four detachments of Colonial mounted infantry, and two hospital companies with two field hospitals. The trained signallers were attached to special signal patrols. The fighting strength consisted of 3,600 sabres, 1,400 rifles, 42 guns, and 14 machine guns.

On the 11th February, 1900, the cavalry broke up their camps, covered in three marches some 80 kilometres (50 miles), and rested on the 14th in order to give time to the supply columns to come up. On the 15th the division moved out from Klip Drift in order to advance straight to the relief of beleaguered Kimberley. The road was obstructed by a detachment of 900 Boers with three Krupp guns, who held a position about 2 kilometres (1¼ miles) in extent between two hills, affording a field of fire sloping towards the enemy. General French first brought all his guns into action, under the protection of his mounted infantry, which quickly silenced the Boer guns, and he then directed their fire against the Boers, with, however, but slight effect.

Whilst the infantry of the 6th Division was reaching the battlefield, General French decided to attack. The 3rd Brigade, with four squadrons at ten paces intervals, were ordered to charge upon a part of the enemy's position which seemed to be less strongly held than the rest. The second ranks followed with about twenty paces interval. The 2nd Brigade followed 500 yards behind the left wing in column of

squadrons; the 1st Brigade next with all the guns, as the third line, in brigade column. The English Regulations laid down that it was advantageous to attack uphill, as the enemy's infantry would be more likely to overshoot the mark.

The Boer artillery immediately opened fire, but as their shrapnel burst too high the effect was almost *nil*. The first line broke into a gallop when about 1,600 yards from the enemy, and received their fire at from 1,200 to 1,000 yards, with a loss of only 19 men and 32 horses. It charged through the enemy's lines and reformed some 1,500 yards on the other side. Something over 2,000 yards were covered during the gallop. The second and third lines had taken part in the first gallop, then breaking into a trot. Only one man was placed out of action. In the enemy's position 15 dead Boers were found.

The cavalry had bought their success, thanks to the determination of their leader, with but a very slight loss. Even if the loss of the first line had been twenty-fold more, we should still have been able to adduce this attack as a proof of the possibility of attack by a large cavalry force. The attack was made easier because the Boers in their excitement fired too high, and that then, instead of remaining prone and continuing their fire, they fled. There was no pursuit of the enemy on account of the exhaustion of the horses.

After an hour's rest, during which the artillery had had time to come up, the division resumed its march to Kimberley, where they arrived about 5 p.m., after having covered 45 kilometres (28 miles). On the 16th, at 5 a.m., General French ordered two brigades to pursue the investing forces in a northerly direction, which led to desultory rear-guard fighting.

The cavalry, which had scarcely recovered from the effects of their sea voyage, was much exhausted by this expedition, to which the early start and the want of water contributed not a little. Of the well-mounted 9th Lancers on the 11th February, when the horses were mustered on the 17th only 28 could trot; one horse battery alone lost 32 horses by exhaustion. But what was most unfortunate for the well-being of the horses, the oat ration upon which the English horse is mostly nourished had to be reduced; as on the 15th De Wet had captured a supply column, in spite of all efforts it had again to be diminished, sinking during the days at Paardeberg even to $\frac{1}{8}$ kg. ($4\frac{1}{4}$ ozs.). There was no hay at all, so the horses were thrown back upon the wild grass, and, owing to the large number of horses massed together, there were difficulties even in their finding enough of this; moreover, this moistureless grass had little nourishment in it. The state of the cavalry got worse and worse, all available horses having been handed over to the newly-formed mounted infantry detachments.

On the 17th, French scored another success, as he succeeded, after some fighting on foot on the part of the 2nd Brigade, supported by the fire of the machine guns and two horse batteries, in forestalling the Boers at Koedoesdrift. His loss on this occasion was only 18 men. Apart from the attempted pursuit to the north, which cannot be justified, the handling of the Cavalry Division, which had shaken itself free from all impedimenta, serves as a pattern. As cavalry troops they were, however, worn out. Gordon's Brigade on the 18th was only able to reach the neighbourhood of Paardeberg with 160 horses, 120 of which had been borrowed from the Diamond Fields' Horse;

during the next few days only single detachments came in. With unsatisfactory provender they were unable to recruit themselves during the sixteen days of rest before Paardeberg. On the 12th February the Division had crossed the Modder River with 5,027 horses; on the 27th, the day before Cronje laid down his arms, it numbered only 3,533, that is to say, 1,474 horses had succumbed to their exertions, only about 100 to the bullet.

Up to the battle of Poplar Grove, on the 6th March, the strength of the division, including the strongly increased mounted infantry, was brought up to 5,725 horses by means of captured horses. As the result, however, of some mistake in the orders, the cavalry here failed to attack, although it was the best opportunity which had yet offered itself. Owing to complete exhaustion they were obliged to look on inactive as the Boers, in complete disorder, fled past them some 5 kilometres ($3\frac{1}{8}$ miles) off. The day cost the division 213 horses; up to the entrance into Bloemfontein the cavalry lost 314 more, and the artillery 134. Those horses that still remained had so fallen off in their capacity for work, that no great demand could be made upon their strength. Most of the horses could not even gallop 400 yards; many could not even trot so far. There were too few horse depôts, and there was a want of broken-in riding horses, which could immediately take their places in the squadrons. What the cavalry got were horses, which, scarcely trained, were not equal in any case to the work they had to do, and therefore speedily broke down.

In August, 1900, 500 Hungarian horses were drafted to Mahon's Cavalry Brigade and Pilcher's Mounted Infantry. Although no special exertions were required of them—and these horses were particularly well taken care of—in the first ten days 350 of them succumbed. One lancer squadron up to April, 1900, had used up some 400 horses. The horses that fared worst were those which came from the Northern Hemisphere, and had their full winter coats on, while the hottest summer weather prevailed at the theatre of war. With what extraordinary rapidity the cavalry succumbed the following figures show:—On the 9th February, 1900, the three brigades of the Cavalry Division numbered, in 24 squadrons, 2,754 men and 2,871 horses; on the 31st March there were only 830 horses of the cavalry available, while each battery could only horse four guns. It was necessary to leave behind in camp, as unfit to march:—

From the 1st Brigade -	- 305 horses.
From the 3rd Brigade -	- 451 horses.

On the 22nd April the 3rd Brigade numbered 1,350, the 4th, newly arrived at the theatre of war, 1,400 horses; by the 2nd May the strength of the 3rd Brigade had sunk to 950 horses, of which 250 horses were not fit to march, and the strength of the 4th Brigade to 950, of which some 300 were crippled. On the 11th the 4th Brigade was only 552 strong. During the halt at Kroonstad the cavalry received 352 horses, of which 112 had to be immediately reported as unfit for service.

The strength then stood as follows:—

	1st Brigade.	*4th Brigade.*
On the 9th May—	1,337 men, 1,195 horses.	1,050 men, 770 horses.
On the 19th May—	1,014 men, 795 horses.	1,031 men, 719 horses.
On the 3rd June —	921 men, 783 horses.	921 men, 484 horses.

On the 28th June the marching-out strength stood at:—

2nd Brigade - - - -	476 men, 504 horses.
3rd Brigade - - - -	964 men, 487 horses.

History records[1] two more attacks on Diamond Hill and the other at the Sand River; but they were, however, the exception.

From henceforward all effective action by the cavalry was out of the question. If the cavalry did not wish to look on inactive, they must once for all take to their carbines in action, but they were then reduced to acting as mounted infantry. The operations in South Africa teach us that nothing is harder in war than to build up cavalry anew; well-trained men are mounted on unbroken horses, and there is no longer cavalry.

In opposition to the Regular cavalry, the mounted infantry now come to the front. They will always be of importance if, by the unexpected appearance of even weak infantry at distant points, the enemy allows itself to be influenced in his decisions. The English draw a distinction between the mounted infantry and the mounted rifles, the latter being formed from volunteer detachments from the Colonies and the Mother Country.

The unit of the mounted infantry is the company, which consists of from 110 to 130 men under a captain. The company is divided into four sections, each under a section leader; each section is again subdivided into parties of four men each, of which No. 1 is in charge and is responsible to the section leader for the proper care of the horses and for his men.

All formations of the company are in single rank, so as to make the movements as simple as possible. On dismounting to fight, the sections draw up in line, the men taking their arms out of the buckets, and throwing the reins over the horses' heads. The horses then remain standing until the horse-holders, who are the flank men, and the centre-rider of the section have tethered them.

The march pace is alternately walking and trotting; galloping is quite the exception, and an average length of march of 7 kilometres ($4\frac{3}{8}$ miles) can be depended on.

The men are armed as infantry, viz., with rifle and side-arms. Every man carries 150 cartridges, either in pouches or, preferably, in

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[1] On the 10th May, 1900, General French attempted to surround the Boer position at the Sand River with the 4th Brigade (770 horses), and was attacked in his flanking march by about 200 mounted Boers, who opened fire at about 1,000 yards, but immediately turned tail when the 4th Brigade swung round and charged with several squadrons in open order. They did not succeed, however, in reaching the Boers, who left 3 prisoners and 7 dead behind them; the loss of the 4th Brigade is not given.

Diamond Hill (Donkerhoek), 11th June, 1900.—The 12th Lancers, with the combined Guard Cavalry—about 400 men strong—successfully attacked 200 men of the Bethel Commando, who were pressing the Q Battery hard. The Bethel Commando were ridden down, but the attack then was discontinued, when other Boer detachments and a gun opened fire. The loss was 3 officers and 17 men.

bandoliers. Patrols carry the rifle always resting on the upper part of the right thigh.

The saddle is the Army saddle, the reins a simple snaffle. The equipment consists of saddle-blanket, great-coat, a valise behind and hobbles (as stabling was very rarely to be had, and the horses were obliged to seek their own food, but could not be allowed to stray far), with water bucket, water bottle, and cooking apparatus.

There were no peace cadres for the formation of mounted infantry. In South Africa each battalion had to raise a mounted infantry company. In England two battalions were formed, four companies with four sections each, and in such a manner every infantry battalion had a mounted section. As there were a large number of well-trained Reservists, who had already been instructed as mounted infantry, there was no difficulty in forming these detachments on mobilisation. There was, however, more difficulty in keeping the detachments up to their strength. That was only possible when officers and men of the mobile battalions — selected for obvious reasons from among the best — were detailed for the duty. The infantry were then robbed more and more of their better elements when the companies first organised proved insufficient, and an increasing demand arose from all sides for mounted troops. So only the elements of least value remained behind with their battalions: men who were bad shots, with but little smartness about them.

The steady deterioration of the infantry thus led to their being mostly employed for the protection of convoys, garrisoning the blockhouses, and as a more and more ineffectual reservoir for the mounted infantry. The attaching of volunteer companies to the field battalions was only one more unsatisfactory auxiliary measure for raising the efficiency standard of the infantry. Finally, gunners from the batteries, who it was thought could be dispensed with during this people's war, were turned into mounted infantry units.

The complaints about the mounted infantry were, at the beginning of the war, not a few. The men of the detachments first formed were so little at home in the saddle that they could scarcely keep their seats when trotting across country. After some months they improved, but their horsemanship remained so poor that they were not in a position to undertake scouting.

They ought to have represented a very mobile infantry as, with the extension of the battle-fields, the rate of marching of the infantry is not rapid enough for moving the Reserves. They ought to have proved useful for covering rapidly advancing batteries and for coping with cavalry when the latter are in difficulties, for rear-guard fighting, and enterprises in rear of the enemy. Strangely enough, their services were seldom required to scout for the infantry, who were several times in the early fighting surprised by the enemy's fire. This was accounted for by the real fighting troops being no longer infantry but mounted men.

Still one remarkable alteration was effected during the war. The dismounting at a long distance from the enemy was felt to be a great disadvantage. Colonel Pilcher gave up, for example, when the nature of the ground seemed favourable to him, the dismounting in cover, and advanced at a gallop, while single detachments were moved

against the flanks, under cover of his guns, till he had arrived within an effective range, where he made the men dismount and continue the advance on foot. This was continually successful.[1]

The Boers also adopted this method with success; but whilst most of the Boers and English at the beginning of the war considered the attack as holding out but small chances of success, the strange fact came to pass, that towards the end of the war the Boers, who till then had only been mounted infantry, now actually attacked as cavalry. What up to this time kept the Boers together, required the combination of readiness of fire and also a discipline that would not shrink from comparison with Regular troops. Success in guerilla warfare had given the Boers a strong belief in themselves, and a consciousness that if they only rode forward nothing could stand up against them. In these attacks they held their weapons as much as possible horizontally, and delivered a rapid fire while riding forward. In this manner some 2,000 mounted Boers, here and there in two ranks stirrup to stirrup, attacked at a gallop of 1,500 yards, on the 11th April, 1902, a detachment of Sir Ian Hamilton's at Roival. The English scouts and skirmishers, pushed far in advance, who had opened fire at long range, were ridden down; then, at 600 yards distance, the Boers came against the main body. Not until they had got within 80 yards was the attack shattered. The Boers left in the hands of the English 81 dead, 40 wounded, and 36 unwounded prisoners. It is certain that if the attack here had been made by determined lancers in several lines, one behind the other, it would have succeeded. Other cases might be quoted, as, for example, when some 1,500 Boers, in a widely extended line under Delarey, on the 31st March, 1902, attacked a column under Colonel Cookson, consisting of mounted riflemen of the horse artillery, the Canadians, and the 28th Battalion of mounted infantry.

On the 30th October, 1901, the rear-guard of the columns, under Colonel Benson, was attacked also in this manner at Brakenlaagte. Two guns, under the protection of a company of the Buffs and some 50 mounted infantry (25th Battalion), had taken up a position upon a high ridge, whilst numerous scouts were in front. These were overridden; the Boers succeeding in forcing their way into the position capturing the guns, and retreating, although some men of the mounted infantry kept their ground, and two companies of the Buffs were pushed forward, who, however, could not gain a suitable fire position. The loss amounted to:—

Artillery - - - -	7	dead,	20	wounded.
1 Company Buffs - -	8	,,		
Yorkshire Light Infantry -	13	,,	10	,,
Scottish Horse - - -	26	,,	?	,,
King's Royal Rifle Corps -	10	,,	?	,,
	64	,,	30	,,

According to other accounts, there were some 160 men on the battle-ground, of whom 123 were either killed or wounded.

[1] For example, at Vaalbank, 27th November, 1900, and at Tabaksberg, on 29th January, 1901; both times against De Wet.

The English mounted infantry also frequently attacked during the course of the war, which was not supposed to be in accordance with their special work. The want of an *arme blanche* made itself felt; a weak substitute was the rifle with fixed side-arms used like a lance. Thus during the last actions of the campaign the circle was completed: the mounted infantry had become finally again cavalry, but cavalry of a very inferior character.

In estimating the lessons of the South African War, as regards the use of cavalry, it must be kept in mind that the English cavalry were opposed by no cavalry but only by mounted infantry; that the Boers were first encouraged to attack when the English cavalry in December, 1900, except some regiments under General French, laid aside lance and sabre. Whilst Lord Roberts himself spoke out in the most decided manner for a greater favour being shown to dismounted fighting, and even went so far as to express the view that, as a rule, the attack was the exception, and finally did away with the lance entirely, and substituted a rifle for the carbine, General French rightly emphasised the necessity, on educational grounds, of training the cavalry primarily in the attack and use of the *arme blanche*. Without attack no scouting is possible.

"The ideal cavalry," said Colonel Haig,[1] General French's Chief of Staff, "is that which can fight on foot and attack on horseback. The necessity of training cavalry is, as the result of my experiences in South Africa, as great as it was in the days of Napoleon." He then lays down the following maxims:—"Mounted infantry is only a makeshift to compensate for the slow movement of infantry on the battlefield, and to serve, as occasion offers, for protection to guns or as a support to cavalry. The *rôle* of the two arms must be kept quite distinct; never must cavalry be permitted to become mounted infantry, nor the latter to attempt to become cavalry."

The offensive *rôle* of cavalry and the possibilities open to it have steadily increased. Putting on one side a few situations, in which mounted infantry can afford support to cavalry, the latter is equal to all duties, while mounted infantry can only perform its part in combination with cavalry, as it cannot fight effectively against cavalry, either on the offensive or the defensive. Mounted infantry, when dismounted, are hampered by care for their led horses; mounted they are defenceless against cavalry. The principal advantage cavalry possesses over mounted infantry is that it can always turn effectively to the attack.

Officially in England, due to Lord Roberts's initiative, cavalry actions are regarded unfavourably; also upon the Continent voices have been raised in favour of turning cavalry into mounted infantry. But unprejudiced examination of what took place at the theatre of war in South Africa teaches just this, viz., that cavalry requires the most extensive training in dismounted fighting, in attack and defence, whether by day or night; but that as a direct consequence of the great increase of the artillery with the whole apparatus of columns, and in consequence of the special form of our infantry battle, the chances of successful cavalry attack have notably risen, rather than

[1] Report of War Commission.

decreased.[1] For mounted infantry there is no place in the great Continental Armies.

IV.—Conclusion.

The campaign of the English conclusively teaches us the *superiority of the active-offensive over the passive-defensive*, which is further fettered by a very immobile baggage train. How different would have been Cronje's fate if at Paardeberg he had been prepared to cut himself loose from his ox-wagons and hurl himself upon the flank columns of the English or upon their supply trains. It would then have been demonstrated how little fitted the English Army was for carrying on such an active offensive, which must be based upon the rapidity and freedom of all its movements. The individual Boer was mobile and self-supporting; but his leaders were slow of decision and the commandoes were hampered in their rapid movements by their baggage. The operations of De Wet in the first place, during the advance of the English on Pretoria, and then above all the well thought-out, but for a long time insufficiently appreciated, undertakings of Delarey, show the value of a proper method of fighting, which might have been crowned with a considerable measure of success.

The necessity of having a good well-trained, numerous cavalry for scouting, for battle, and for pursuits, comes clearly into prominence. We know now what effect a pursuit, for example, after Elandslaagte, Modder River, Poplar Grove, and after the relief of Ladysmith would have had. It was just this failure to pursue which gave the Boers the opportunity of always establishing themselves in a new position for defence. Had not a longer halt been forced upon the English after the capture of Bloemfontein and Pretoria, to arrange for further operations, the war would soon have come to an end. Already in February, 1900, the Boers were quite ready to conclude peace, but the heavy sledge-hammer blows, which would have compelled them to lay down their arms, were wanting. The English leaders had abandoned the idea of annihilation. The whole tactical methods were calculated with the object not of destroying the enemy, but of avoiding losses themselves.

Cavalry and artillery have only been able to amass but little knowledge, the infantry, however, have done much better in this respect. But the lessons learnt by the infantry are not free from objection. It would be false if we were to regard the small losses as determining those likely to occur in

[1] A competent critic, who fought on the Boer side, wrote to me as follows :—"Upon the whole the war teaches us that the cavalry attack is more than ever justified. I have said to myself over and over again that here was a chance when a cavalry attack must have succeeded without the loss of a single man. In peace such moments simply do not occur, and do not present themselves to one's mind. Troops retiring under fire will not be brought seriously to halt and fire. We have sometimes fired with a few men on the English who had set a farm on fire and were marching back to their camping place. The fire in their rear was even for quite intact troops continually the signal for increasing the pace. The artillery also often during the war, under pressure of circumstances, moved without escort, so that it was powerless against a cavalry attack."

European battles. The English infantry had practically to suffer no losses from artillery fire; they had not learnt what it means for infantry to be obliged to press forward in face of a well-directed long-range fire. On the other hand, no battle-field in Europe would present the peculiar conditions obtaining in those of South Africa.

Every battle showed that a defensive force well provided with cartridges can occupy a greater extent of ground than formerly by dispensing with support behind the firing line. The effect of a concentrated heavy fire, especially of the rapid fire in preparation for the assault, did not entirely come up to the expectations of the attackers. Only a want of cartridges can prevent us, speaking from a merely musketry point of view, from making the best use of the efficiency of our good rifle at long ranges, trusting to the good marksmanship of our infantry. We can anticipate that long-range fire in the attack, even against low-lying objects, will in any case cause a quite appreciable annoyance of the enemy.

The advance of any detachments in close order into the effective fire-zone must also be regarded as an impossibility. It is no help to such detachments if in front of them strong swarms of skirmishers lie under fire; on the contrary, just this circumstance makes it particularly insupportable. The demand in our Regulations, to advance in open country in wide formations, with strong swarms of skirmishers and line formations in rear of them, would lead to very great losses, even if the units, kept in the rear, also extended in skirmishing lines. The duty which, even at the present time, according to our Regulations, devolves on our units in close formation to push on the skirmishers and, under certain circumstances, to give the decisive blow, could not, on the English side, be carried out. But nothing could be more fatal than to dispense entirely with supports in the attack; they are absolutely necessary to keep the attack going.

For hours at a time the fighting at close ranges can be carried on without decisive results and without great losses. The troops trained in other methods were particularly exposed to disappointments. The weakening or the complete silence of the defenders' fire was merely deceptive, and after some moments it broke forth again upon the attackers at quite short ranges as they sprang up to storm.

All attempts to carry out attacks over hastily and by methods prescribed by rules failed. *The widest individualisation is here in place. To bring this into harmony with the requirement, to avoid isolated attacks and to make a combined one possible, remains as formerly, a most difficult task. This marks the boundary between what a Regulation can lay down, and what tactics must accomplish.*

This war teaches one thing with convincing clearness: the incapacity of all militia Armies—that is to say, of a population called up without a thorough peace training, without military organisation, and without staffs—to fight big, long-sustained battles, on which the very existence of a State may depend.

Gambetta's French *levée en masse* were also militia, but they had a support in an already existing organisation, trained officers and men were forthcoming in sufficient numbers, and a strict punishment code made the maintenance of discipline easy. What was lacking in training was made up for by numbers. Thus the battle-fields of Beaune la Rolande and Beaugency bear testimony to the heroic onslaught of the young French troops, but not of tenacious endurance or of a firm cohesion in retreat. But everything, this spirit of self-sacrifice, this

reliance on trained elements and numbers, all were wanting to the Boers. The individual Boer, having always to depend upon himself during peace, possessed a high sense of power and self-reliance. A strongly developed egotism prevented him making a sacrifice for the sake of a great idea, or subordinating his interests to the needs of the great body corporate. He was always wanting to know "Why?" not only as regards co-operation, but also regarding participation in council.

The summoning of a Council of War before important undertakings was an official arrangement. Those who were against the views of the majority could not be compelled to join them. Thus, for example, only 1,000 Boers from the Free State were present at the battle of Modder River (Cronje against Methuen) on the 28th November, 1899. More than double that number remained inactive in rear of the position, and did not even go to the front when the course of the battle took an unfavourable turn for the Boers. Many had only joined the commandoes unwillingly and took advantage of the first opportunity to withdraw. Finally, the practice was fatal which permitted a Boer, who did not like his own commando, to attach himself to another. As the result, there were petty jealousies and mistrust between the allies on both sides, which generally made their appearance at the moment when a strong and energetic combined action was most necessary.

Such an army is good enough for an expedition, and is adapted for the defence of house and home, if the common danger unites everyone at short notice; but the danger over, then the need of rest and the divergent interests of individuals had to be kept in mind. Opposed to a trained enemy, they could only hold out by the repelling power of the efficacy of their fire in entrenched positions. The defensive is the natural form of fighting of all militia forces; they are wanting in all the preliminary conditions required for taking the offensive. How could a leader in a Council of War justify the sacrifice of men's lives which a really serious attack, not merely an onslaught, on a wagon column or a carelessly resting body of men demands?

To the first burning enthusiasm with which the Boers had ridden over the Tugela into Natal followed the time of the passive loyalty with which they endured the onslaughts of the English. The war already lasted long enough for people not paid by the State. Their self-denial was subjected to a severe trial. General Joubert, who was from the beginning averse to the war, did not wish to provoke the English more by enterprises, in order not to embitter the opposition to the conclusion of peace, which was already in February, 1900, expected from day to day. His views were endorsed by his people, who for themselves laid claim to a right which originated in the Kaffir wars, of having fourteen days' leave after three months' service in the field. If the leaders could not grant this, they had no means of compelling the obedience of their men. With or without the permission of their leaders these men left the Army. Of what use was it that there was a fine of 750 marks for absence without leave, payable on the conclusion of the war? If the Boers won, the fine would certainly be remitted; if they were conquered, where, then, were the authorities to enforce payment?

Quite unexpectedly came the news of Cronje's surrender. The line of the Tugela was hastily evacuated; there was despondency everywhere. The retreat became a headlong flight, which continued as far

as the Biggarsberg Mountains. The same thing occurred in the west. Already after the action of the Modder River (28th November, 1899), President Steyn had had to speak seriously in order to recall his people to a sense of discipline and the fulfilment of their duty. After the undecisive battle of Poplar Grove, neither the entreaties nor threats of the aged, venerable Kruger were able to check the flight. No leader had the courage to carry out his orders and shoot the fugitives. Most of them declared they had had enough, and wanted to go home.

After the disastrous action of Diamond Hill (10th and 11th June, 1900) most of the commandoes held a meeting, and demanded information from their officers as to the intentions of the Government. A very large number declared against any further fighting. Had the officers only possessed more authority, or understood how to command, a serious word would have been enough to keep their men together. As it was, the greater number went back, under the very eyes of their officers, to their homes, which were in the possession of the English, whilst they strangely appealed to holy writ:—"Submit yourselves to the authorities, who are set over you."

Not till after some months was there a change; the faint-hearted elements were weeded out; those who now held out had gained a rich experience in war. The necessity for maintaining strict discipline was now recognised. Too late, after Pretoria had fallen, an attempt at reorganisation was made. The men received pay at the rate of 5s. a day, and the men were more closely watched; but there were no means to the hands of the leaders of compelling the necessary obedience. It was too late; the fate of the Boers was sealed. They had to go under, as to the last they failed to appreciate the true inwardness of a war on which their very existence depended, and on which hung the decision whether Dutch or British should possess South Africa.

The Boers were not wanting in devotion and love of their country, but they were devoid of all those qualities which constitute the sign-manual of an Army thoroughly and systematically trained in time of peace.

SOME NOTES ON AN ACTIVE SERVICE KIT AND EQUIPMENT.

By Captain R. M. G. TULLOCH, 2nd Royal West Kent Regiment.

THE following notes are put together, not with the idea of expounding new ideas, but to impress and recall certain useful information learnt after many uncomfortable days and nights on service in South Africa. Looking back, even after a few weeks on service, officers seem to be quite different beings to those who landed fresh from shipboard, hung about with many and curious articles, half of which were discarded after the first few days. Apart from not knowing exactly what to take and what not to take, both in the kit and on the person, the absolute want of knowledge of both officers and men of how to make themselves comfortable and to make the best of the things available, when in the open, away from towns or houses and the ordinary routine of peace life, was absolutely pitiable; and in these notes it is hoped to give some information which may save others from like misfortunes.

The first point impressed on the writer was that it is far better to take too much kit and to shed it, preferably, if possible, at some depôt, to be picked up later, as opportunity offered or occasion required, than to start with too little, and be in want of such needful articles as blankets or an oil-sheet, and have to go without for months. This may sound an extravagant idea; but as on active service everything must be of the very best, the cost of the extra articles is money well spent, and later, when up at the front, untold wealth will not buy any needful articles that are deficient.

It may have been that after the first few marches, officers and men were more accustomed to the work, and knew what to expect; but certain it is that the first marches, bivouacs, and outposts were far more uncomfortable and unpleasant in every way than subsequent ones, and it can only be thought that, as time went on, everybody learnt how to look after themselves, even under very adverse circumstances, which is a secret well worth knowing.

On disembarkation, officers were too much inclined to carry all manner of arms, equipment, etc., on the person, quite forgetting that active service means weeks and often months of marching, with but an occasional fight thrown in. After a lengthy period of trekking, it was found that the most comfortable, light, and at the same time useful, articles were field glasses, walking stick, haversack, water bottle, sweater (or even sweater and Cardigan jacket), and revolver. Taking the utility of these articles in detail, the field glasses were far and away the most important part of the officer's kit, certainly as regards the men under his command, as an officer with good glasses is the look-out man, and, so to speak, the eye of the company. A haversack is not a necessity, but is at the same time most useful for

carrying odds and ends and the very necessary reserve of a biscuit or two and a piece of chocolate. A water bottle in all cases is a necessity. A sweater may sound a curious article of kit to carry about, but in South Africa, where the temperature fell immediately at sundown, it was most useful, being light and very warm; and from the writer's experience, if the body were kept warm, it was possible to sleep under nearly any circumstances, even though damp. An oil sheet was not carried on the person, and in place of a sweater a blanket was found to be the next best covering, as it is preferable to be warm, even if damp, in which case sleep is possible, rather than dry, but cold, when sleep is out of the question.

The weapon for an infantry officer is preferably a revolver, as it is very handy for night use when on patrol, or when visiting sentries. By day an officer hardly ever needs a weapon, as he should not want to be in the firing line shooting, but rather controlling it, and using his glasses; and if at last there comes a charge, by that time there are plenty of dead and wounded from whom to get a rifle and bayonet.

Waterproofs, or oil sheets as they are usually called, are a most useful article in a campaigner's kit, as, wrapped in a big waterproof sheet, everything is kept dry, however bad the rain; and perhaps the best are those of Willesden canvas, as they stand rough wear very well, and there is no rubber to peel off, as in some kinds. The sheet itself should be of a good size, so as to enable the owner to completely roll himself up in it.

During the later stages of the South African War, when on outpost, the bed valise was never taken out, but only a couple of blankets rolled in a big waterproof sheet so as to save transport, which was especially necessary when the picket was on a hill-top. There are many good patterns of bed valise, those that have a flap coming over being the best. Some patterns lace down the centre, but are most uncomfortable when it rains, as the rain leaks in through the centre seam unless pulled very tight, and if laced too tightly it is impossible to get out in a hurry. It is not at all pleasant being laced up tightly in a bed valise, and knowing that if any alarm occurs it is impossible to get out rapidly; and as on outpost it would not be safe to lace it up tight, on a wet night the owner would be soaked.

As regards food, a sound maxim is to eat whenever possible, as it is never known when the next meal can be obtained; and a reserve carried on the person in a haversack or jacket pockets when marching is an absolute necessity. It was found that two or three ration biscuits and a piece of chocolate were about the most sustaining and portable means of subsistence, as they were light, not easily broken up (except the chocolate, which should be carried in a small tin), and most sustaining, the chocolate and the biscuits being very "filling," whereas in the patent lozenges, often recommended, there is plenty of sustenance, but they do not at all give the feeling inside that a solid meal has been taken. The great idea to keep in mind when on the march is to go as lightly equipped as possible, in order to get over the ground comfortably, and yet have sufficient on the person so as to be independent, if necessary, of the waggons for twenty-four hours.

Owing to the want of firewood in the Free State, the men were accustomed to carry their firewood—a few sticks or a piece of wood—for miles, knowing that if they did not, on arrival in camp they would have nothing to cook with, and so would go to sleep hungry. In

the division with which my regiment worked, at one period the men received a daily issue of flour instead of biscuit, and consequently had to do the cooking of chupatties for themselves, and those who had no sticks or did not understand cooking came off badly.

This habit of laying in a store for the future and making preparations for the next day was soon impressed on the men, for the reason just stated, and was a most useful training for men who had always before been in the habit of getting just what they wanted for the asking from a shop or from the canteen. Whenever there was a chance, the men used to lay in stores of Quaker Oats, etc., and the moment a march was done they fell out, collected any cowdung available, or used the sticks they had brought with them, and in a few minutes there were dozens of little fires going; and these small messes of two or three had something cooked and eaten long before the company teas were ready. Later in the war, when sheep and cattle were killed as extra rations, it was no uncommon sight to see men marching along with pieces of cooked or raw meat, and even legs of mutton, hung on their equipment, so that on arrival in camp they had food ready, and this habit of self-support of looking after himself was one of the best things learnt by the infantry soldier in South Africa.

As an example of how, at first, men did not look after themselves: I was once sent with a new draft from England—not of my own regiment—to hold a detached post near Bloemfontein. After having been camped on arrival for about an hour, I inquired why there was no cooking, and was told the men had no wood, and was asked where they might get it, though there was plenty of good firewood only a few hundred yards away. And even though the men had plenty of money, not one of them thought of purchasing fowls, eggs, or even bread, from a native village near by, but lived on their bare rations.

In all cases the ignorance of how to look after themselves was simply because they had always lived in towns, and had never before been told about such matters, or even thought of them for themselves.

In this article reference is only made to infantry officers and men; the mounted troops were much better off than those on foot, as they could carry more with them, and had a wider field to forage over.

The writer was much impressed with the necessity of officers knowing something of cooking, as often when one or two companies were detached, the officers had to trust to the efforts of an unskilled private, and the results were frequently somewhat surprising, though taken all round they were not bad. Still, even an elementary knowledge of cooking would have been most useful on many occasions.

When a force is halted, even for a short time, it is wonderful what good temporary ovens can be made out of ordinary corrugated iron, and these ovens are a great blessing to all ranks, as flour, if obtainable, can be made into bread easily, and also a variety is given to the cooking. In referring to these temporary ovens, big ones, as used by the A.S.C., are not meant, but small ones for 6 or 8 men, roughly put together by untrained men.

In a bivouac the men learn very quickly to club two or three together and make a rough shelter tent of two blankets and a waterproof sheet supported by rifles, using the remaining blankets and waterproof sheets inside to sleep on. The bivouac can be much improved by sods piled round the bottom edge of the roof to keep out both the wind and surface water. In a bivouac, or even a long halt

by day in a hot sun, a blanket supported on rifles or sticks to keep off the sun is a necessity, as without shade, sleep in comfort is quite impossible, and lying in a hot sun is not much rest, and is decidedly dangerous.

As marching occurs far oftener in a campaign than fighting, good and comfortably fitting boots and plenty of spare socks and boot laces are a most important part of a useful kit. Two good pairs of boots, well dubbed, and plenty of spare laces are absolute necessities. Laces come in most useful, not only for one's boots, but for tying up shelter tents, etc., and a hundred and one odd things, when string is not procurable. However good and comfortable boots may be, if they have no laces, or only half a one, they are not at all pleasant to walk in. As the weight of the kit is limited, it is impossible to take large quantities of socks, boot laces, soap, cigarettes, chocolate, and other articles which require frequent replenishing, and so a good system is to arrange with friends at home to send out by parcels post weekly or fortnightly such articles as soap, chocolate, and cigarettes, and, say, once a month, a flannel shirt, pair of socks, and boot laces. Of course, certain things may get lost in the post, but those that do arrive are worth their weight in gold, and if not wanted by the receiver, are always most useful to someone. On the march, during any long halt, it is an excellent thing to take off putties, boots, and socks, and let the socks dry in the sun while resting the feet; but care must be taken not to lie with the feet too much in the sun, or they will get badly burnt, and marching will then be agony.

At the present time every sort of tinned provision is obtainable, and if transport suffices there is not likely to be any danger of running short of food over and above the ordinary rations; but if, as is generally the case, transport is not available, then the provisions must be the least bulky and the most useful obtainable. Fancy tinned stuffs must be rigorously excluded, and the commonplace but useful tinned provisions, such as tongues, herrings, sausages, etc., carried instead.

In a campaign, disease causes far greater loss than the weapons of the enemy, and any check that can be used to prevent the outbreak of disease must be employed to its fullest extent. Boiling and filtering all drinking water is recognised as one of the best preventatives; but these simple and effective remedies must be properly employed. It is often the case that men do not boil the water sufficiently, owing to being in a hurry, and the moment it commences to simmer they remove it from the fire without allowing it to really boil for a minute or two. The filters issued to the troops are good; but the "pocket filters," often bought for use on service, are generally very heavy and quite useless for filtering purposes. They may clear a certain amount of sediment from the water, but that is about all they do, and to trust to them instead of boiling the water is absolute folly.

Below is given a rough list of what is required for a service kit, but it must be remembered that the details vary according to what part of the world the campaign takes place in, and moreover, the total weight of the articles mentioned in the accompanying list far exceeds the regulation allowance. As before stated, it is better to have too much, and consequently to have to shed articles when transport fails. Such kit can generally be left at some central point and recovered later, when it comes in, perhaps, exceedingly useful.

The articles of underclothing mentioned should all be of wool, preferably Jäger clothing, as wool is warmer and lighter in proportion than any other material, and, if good, wears exceedingly well. In conclusion, the main points of these notes may be summed up as follows:—Have a good and useful kit to start with; eat and sleep whenever you get an opportunity; and learn how to make yourself comfortable under the most unfavourable conditions.

The following is a list of the most necessary articles required:—

1 bed valise.
1 large waterproof sheet (say 6 feet by 4 feet).
1 folding lamp (with talc sides).
1 canvas bucket.
2 changes underclothing (wool).
1 change uniform.
1 pair spare boots.
4 pairs socks.
6 handkerchiefs.
Boot laces.
Writing materials.
Washing materials.
Balaclava cap.
Sweater.
Great-coat.
Gloves (woollen).
Canvas shoes or slippers.
Blankets (two or more).
Soap.
Chocolate.
Dubbin.
Candles.
Matches.

A small folding camp bed and cork mattress are useful, but these could only be brought up from the base if the force is halted for a long period, or when guarding lines of communication.

REGIMENTAL SIGNALLING.

Communicated.

WHEN in January, 1900, the news was received in England that Spion Kop had been abandoned, and it afterwards transpired that this was indirectly due to a break-down in the lamp signalling, one might have thought that some attention would have been paid to this branch of the Service, not only by the general public but by the authorities also. But, although there are reforms and rumours of reforms, both within and without the War Office, weeks and months go by, still leaving signalling in the background, and leaving it also in a most inefficient condition.

It would be quite superfluous in an article like this to go into the question of the tremendous increase in the importance of signalling in the field brought about by long-range fire, which, *ipso facto*, brings about such extensions on the field of battle and throughout the theatre of war that an action, extending over ten miles of country, is no uncommon thing. As an example of this, Lord Roberts' telegram from Belfast, Transvaal, may be quoted, in which he said, "We have to-day been engaged with the enemy over a perimeter extending for 30 miles."

Under such conditions it is not only necessary, but of vital importance to the success of the operations that messages should be transmitted with the utmost rapidity from one end of the line to the other, and from general to general. This can only be attained by thoroughly trained and efficient signallers.

And now to look at the difficulties encountered by the regimental signalling officer in trying to get his men, and get them trained.

Until very recently—in fact in a great many cases up to the present day—any form of signalling was looked on by many officers with disfavour. It was often openly derided, and the opinion expressed that signalling was useless at home, and would be fatal on service. In fact, the mere sight, in the distance, of a waving flag, would be the signal for an outburst of acute wit, at the expense of the Regimental Signalling Officer.

When communication on a field day was successful beyond all expectations (considering the material to work with) this officer was promptly reminded of other days when he couldn't "find the sun" or "read a message," etc., etc.

Under these conditions it was only natural that the young officer joining his battalion should form a very poor idea of the work, and would want to have nothing to do with it. Should he, however, determine to learn it, he not only met with ridicule from other subalterns, but received little or no encouragement from his C.O. The latter might say (as in the case of the writer he did), "You can learn signalling, but won't be excused C.O.'s parade."

One is glad to find that, since the war, such ideas on the part of seniors has been reduced, one might say, to a minimum, for it is too

much to expect that all of them will approve of it, considering that some of them even want to do away with cavalry.

The difficulty at the present time is not from want of signalling officers on account of the work itself, but because the men cannot be persuaded to learn it.

It must be remembered that signalling is not like shelling peas. It is not every man who can pick it up. The would-be signaller must be a man possessing a certain amount of common sense, have an eye to country, be able to read and write and spell fairly well, and also to have good eyesight and be intelligent. It may be argued that some of these qualifications are not necessary. But the experience of the writer seems to show them to be absolutely indispensable, if the signalling is to be reliable. He has seen excellent readers and excellent senders set up their helio. on a bright sky-line, with the sun behind them, and expect the distant station to read them. He has seen these same excellent readers make a message unintelligible because of want of knowledge of the English language. And last, but not least, he has seen them sending a word on the helio. over and over again, because no reply came from the distant station, whereas if they had used a little common sense and their telescope they would have seen the others frantically waving a flag in answer, because they had no sun in their station to allow of a reply by helio.

As for losing themselves in an unknown country—or a known one for that matter—well, they will do that till the crack of doom.

The question of steadiness and sobriety has been purposely omitted, as, although important in peace, one may regard beer as a factor to be eliminated on active service, where the drunkards so often turn out trustworthy, reliable men.

The men required are then, rather above the average class of recruits we get now, and consequently they are very hard to get. It is well known that all good men are promptly snapped up, as grooms, servants, waiters, clerks, etc., on paid billets, and so there is only a small field open to the signalling officer. It is not to be wondered at that men won't learn signalling when it means extra work and no extra pay. It does them very little good, if any, whilst they are in the Service, and absolutely none when out of it, whereas any of those employments mentioned above would help them in civilian life. To emphasise the difficulty in obtaining men, it may be as well to take the case of the writer's battalion. Within the last nine months he has sent through the battalion on six separate occasions for signallers.

The total number of volunteers was sixteen, of whom eight were returned to duty as useless within a fortnight of their starting the work. Of the others, two are good men, the rest only fair. From the above figures, it will be gathered that the class of men who put their names down to learn are not those that are wanted at all. Colour-sergeants try to get rid of their worst men in this way, and, unless the company officer is very sharp, they very often succeed.

The result of all this is that the battalion is practically without signallers.[1]

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[1] Lest it should be thought that it is a bad signalling battalion, it may be as well to say that before the war its figure of merit was over 133, and within four months of the end of the war over 126 of a maximum of 135. The men who took part in these examinations have *all* gone.

There are a few other battalions known to the writer similarly situated. There may be dozens, but in any case there will always be the same difficulty if something is not done to better the lot of the signaller. He ought to be paid, and well paid. It has been said that signalling is a part of his duty as a soldier, but it might be said that so is the work of a company cook, storeman, pioneer, armourer, etc., and yet they are paid. It stands to reason that one must pay for skilled labour, and signalling is that to a high degree—far more so than a servant (for which the Government give an allowance at certain stations abroad), and equally important.

There was pay for the signaller in Africa. If he is worth it on active service, surely he is under peace conditions. The soldier's pay is the same in peace and war, so it is absurd to make signalling a paid billet on service and not paid during peace.

When there are paid and unpaid jobs at home, the soldier will naturally prefer the former, and the best men will get them. This leaves the worst ones for signalling. It is therefore essential that they should be paid in order to be able to compete with the other employments.

According to the new regulations, thirty signallers will be required for next year, and probably not half the home battalions will be able to produce them.

And through all this the battalion signalling officer is held responsible to his C.O. that this utterly impossible work is carried on well. The C.O. himself knows it to be impossible, and says to the authorities, "If you pay signallers, I will find the men; if you won't, I can't."

With regard to the officer, the question has been asked over and over again, "Why is he not paid?" Even in Africa, where his men were paid, and his responsibility was at times very heavy, he was not thought worthy of extra pay.

The Divisional Signalling Officer is paid, the Brigade is not. And so we find that if an officer will devote six months, and much money (for the Aldershot course costs something) to learning signalling, he has to look forward to the paid billet of Divisional Signaller only—and it is not a 100 to 1 chance that he will get it. No wonder he thinks it is not worth it.

The officer and the man have no pay for their work. Consequently they don't work as they might. It is to be hoped that in the near future all this will be changed, and signalling will be instituted on such a basis that there will be a good chance of the best man learning it, so that in the next war in which the Army as a whole is engaged, there may not be the continual but useless cry for trained men where none exist, and where the work will be judged on its merits alone, and not on the opinions of certain prejudiced persons. Let us hope this time is not very far distant, for, from the signaller's point of view, it would be looked upon as the commencement of the Millennium.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made:—

Captains—A. J. Horsley to "Hawke"; H. H. Campbell, M.V.O., to "Highflyer"; Commodore J. E. C. Goodrich, M.V.O., to "Bonaventure"; C. H. Robertson, C.M.G., to "Cornwall"; H. G. King-Hall to "Cumberland"; W. L. Grant to "Sutlej"; L. Bayly to "Queen"; R. H. Pierse, M.V.O., to "Bedford"; F. C. D. Sturdee, C.M.G., M.V.O., to "Drake"; C. E. Anson, M.V.O., to "Dido"; J. R. Jellicoe, C.B., and C. E. Madden, M.V.O., for service at the Admiralty. Commanders—R. M. Harbord to "Alacrity"; V. H. G. Bernard to "Topaze."

The following appointments have been approved by His Majesty, and will take effect next year as the present appointments expire:—

Vice-Admiral Sir Arthur Knyvet Wilson, V.C., K.C.B., K.C.V.O., to be extended in the command of the Home Fleet till his retirement in 1907.

Vice-Admiral Lord Charles William Delapoer Beresford, K.C.B., K.C.V.O., to succeed Admiral Sir Compton Edward Domvile, G.C.B., G.C.V.O., in command of the Mediterranean Fleet.

Rear-Admiral William Henry May, M.V.O., to succeed Vice-Admiral Lord Charles William Delapoer Beresford, K.C.B., K.C.V.O., in command of the Channel Fleet.

Captain Henry Bradwardine Jackson, F.R.S., to succeed Rear-Admiral William Henry May, M.V.O., as Controller of the Navy.

The first-class battle-ship "Irresistible" arrived at Chatham from the Mediterranean on the 22nd ult; she paid off on the 30th ult., recommissioned on the 1st inst., leaving again for her station on the 4th inst.

The first-class armoured cruiser "Hogue" left Spithead on the 16th ult. for China, where she relieves a sister-ship, the "Cressy." The first-class armoured cruiser "Sutlej," which was commissioned on the 29th October on emergency service, was paid off again at Portsmouth on the 18th ult., and was commissioned again the following day for service in China, where she will relieve the first-class armoured cruiser "Leviathan," which ship is to proceed to the Mediterranean, where she will relieve the first-class armoured cruiser "Bacchante," as flag-ship of the Rear-Admiral commanding the Cruiser Division of the Mediterranean Fleet; the "Sutlej" left Spithead on the 29th ult. for her destination.

The first-class cruisers "Theseus" and "Endymion" have been withdrawn from the Channel Fleet, and their crews will turn over to the new first-class armoured cruisers "Cornwall" and "Cumberland," at Devonport and Portsmouth respectively; both ships paid off on the 30th ult., and the "Cornwall" and "Cumberland" were commissioned on the following day. The first-class cruiser "Grafton," Commodore's ship in the Pacific, has been ordered home, and Commodore J. E. C. Goodrich, M.V.O., has transferred his broad pennant to the second-class cruiser "Bonaventure"; the second-class cruiser "Flora" has been ordered home from the same station.

The South Atlantic station, which was constituted on the 1st August, 1903, when the West Coast of Africa was separated from the Cape of Good Hope station, has been abolished, and the whole of the ships of the South Atlantic Squadron have been ordered to pay off, except the gun-boat "Thistle," which is to be attached to the Mediterranean station while employed on the West Coast of Africa. The first-class cruiser "St. George," flying the broad pennant of Commodore F. Finnis, lately in command of the South Atlantic station, arrived at Portsmouth on the 17th ult., at which port she will pay off. The second-class cruiser "Brilliant," from the same station, arrived at Spithead on the 22nd ult., and will pay off at that port, after which she is to replace a sister-ship, the "Apollo," as R.N.R. drill-ship in Southampton Water. The third-class cruiser "Tartar," from the same station, arrived at Plymouth on the 27th ult., and will pay off at Chatham.

The second-class cruiser "Indefatigable" has been withdrawn from the North America and West Indies station; she arrived at Spithead on the 28th ult., and will pay off at Portsmouth. The third-class cruiser "Pallas" and the sloops "Fantôme" and "Alert," on the same station, are to pay off at Bermuda; the ships are to be placed in Reserve there and the crews brought home. The third-class cruiser "Pearl" paid off at Simon's Bay on the 29th ult., and will be placed in Reserve there. The third-class cruiser "Fearless" is under orders to return to England from China without relief. The third-class cruisers "Pioneer" and "Pyramus," with the first-class gun-boats "Speedy," "Harrier," and "Hussar," have been withdrawn from the Mediterranean station; the "Pioneer" and "Pyramus" have both arrived at Chatham, where they will pay off; the "Speedy" will pay off at the same port, and the "Harrier" and "Hussar" at Devonport. The second-class cruiser "Eclipse," from China, paid off on the 18th ult. at Portsmouth.

The Cruiser[1] Squadron is to be raised to a strength of ten ships by the addition of the new first-class armoured cruisers "Bedford" and "Essex" from the Home Fleet, and the commissioning of the new armoured cruisers "Cumberland" and "Cornwall." The squadron thus strengthened will be separated into two squadrons, to be designated the First and Second Cruiser Squadrons. The First Division will consist of the "Good Hope" (flag), "Kent," "Bedford," "Donegal," and "Monmouth." The Second Division, under the command of the captain of the "Drake," will be composed of the "Drake" (flag), "Essex," "Berwick," "Cumberland," and "Cornwall." The First Division will be affiliated to the Home Fleet, and the Second to the Channel Fleet, but both, either

[1] This arrangement has been cancelled, since going to press, by the Admiralty Order of 10th December, 1904.

separately or in combination, will be employed on detached service as may be necessary.

The old armoured cruiser "Northampton," which for many years has been employed as sea-going training-ship for boys in home waters, was paid off at Chatham on the 14th ult.; her place has been taken by the first-class cruiser "Hawke," which commissioned at Chatham on the following day. The third-class cruisers "Cleopatra" and "Calliope," tenders to the "Northampton" are to be paid off, and their place is to be taken by the first-class cruiser "St. George." As soon as the first-class cruiser "Gibraltar" is ready she will relieve the third-class cruisers "Iris," "Medea," and "Medusa," as sea-going training-ship for boys, the latter vessels being paid off at Portsmouth, Chatham, and Devonport respectively. The first-class cruiser "Royal Arthur" will be commissioned at Portsmouth when ready to relieve the second-class cruiser "Mercury," as navigational school-ship, the latter vessel being paid off all standing, and transferred to Gibraltar as additional receiving-ship to the "Cormorant." The following changes will also take place:—The third-class cruiser "Amethyst" will relieve the second-class cruiser "Juno" in the Home Fleet, and the third-class cruiser "Topaze" and the second-class cruiser "Hermes" in the Channel Fleet; and the "Juno," after relief by the "Amethyst," will relieve the "Furious" in the Mediterranean Fleet.

The following changes are to be carried out with regard to the vessels appropriated as sea-going tenders at the home ports: — The first-class cruiser "Endymion," which paid off on the 30th ult., will commission as sea-going tender to the "Wildfire," with the crew of the belted cruiser "Immortalité," which will pay off into the Reserve. The first-class cruiser "Theseus," which paid off on the 30th ult., will commission at Devonport as sea-going tender to the "Cambridge," with the crew of the belted cruiser "Undaunted," which will pay off into the Reserve. These changes are to be carried out as soon as possible after the 1st December. The first-class cruiser "Grafton," when it returns to England, about the second week in January, will pay off at Portsmouth and re-commission as sea-going tender to the "Excellent," with the crew of the belted cruiser "Narcissus," which will pay off into the Reserve. The "Grafton," "Endymion" and "Theseus" will be fitted with various types of guns for training purposes similar to those in the present gunnery tenders. The belted cruiser "Aurora," tender to the "Britannia," is to pay off, her place being taken by the second-class cruiser "Highflyer."

Launch.—The new first-class armoured cruiser "Black Prince" was launched on the 8th ult. from the Thames Ironworks and Shipbuilding Company's Works, Blackwall.

The "Black Prince" is a first-class armoured cruiser of the "Duke of Edinburgh" type, of which there are at present six under construction —two at Pembroke and the remaining four at the yards of private contractors. Her dimensions are as follows:—Length, 480 feet between perpendiculars; extreme beam, 73 feet 6 inches; depth from outer bottom to upper deck, 40 feet 9 inches; draught, forward 26 feet 6 inches, aft 27 feet 6 inches; with a displacement of 13,660 tons. The engines are to develop 23,500-I.H.P., which is expected to give a speed of over 23 knots. She has a complete armour belt running from stem to stern, the thickness amidships at water-line being 6 inches, tapering at forward end to 4 inches, and 3 inches aft. The citadel, which is rectangular in shape, is protected by 6-inch armour, and carries ten 6-inch Q.F. guns,

eight being on the broadside, while the two after ones can fire both on the beam and fore and aft. On the upper deck there are five 9·2-inch guns in barbettes, protected by 6-inch and 3-inch armour, while forward on the forecastle is another 9·2-inch gun, making six in all. The foremost 9·2-inch gun and the aftermost one are placed on the middle line, so that an arc of fire of 310° can be obtained. The other four 9·2-inch guns are placed at the sides of the vessel and nearly over the ends of the citadel, and each of these commands an arc of fire of 180°. The shelter decks are well manned with 3-pounder Q.F. guns, some twenty-eight in number. There are also two Maxims and two 12-pounder 6-cwt. guns for boats and field use. The whole weight of armour is about 1,500 tons, exclusive of the protective decks. The battery has a protective deck of 1-inch steel, which is continued forward on the main deck. In addition, there is the usual sharp cambered protective deck, ¾ inch thick at the water-line, running fore and aft. The 6-inch guns are separated from each other by 2-inch splinter bulk-heads. The conning-tower is of 10-inch steel, provided with the usual armour tubes for carrying the leads of shafts, pipes, etc., from the shelter deck to within the armour protection. There are three 18-inch torpedo-tubes, one on each side and one at the stern, all under water.

One of the new features in the design is the placing of the shell rooms in the ammunition passages close to the ammunition hoists, thus effecting a saving of time in getting the shells to the guns. The 6-inch ammunition hoists have electrical motors, while those of the 9·2-inch guns are worked hydraulically. She has two capstans—one forward, driven by steam, and the after one driven electrically. The vessel is ventilated by means of electrically-driven fans. The coal-ash and boat hoists are all electrically driven. She will be lighted with about 1,400 incandescent lamps, and has also an electrical helm indicator. The whole of the above electrical work, with the exception of the capstan gear, has been made and fitted by the firm, as well as all the ventilating and pumping work, etc. The double-bottom is fitted to carry oil, and fitted with pumps, pipes, filters, etc., to enable the boilers to use oil as fuel if necessary. The coal bunkers can carry, if necessary, about 2,000 tons of coal. The "Black Prince" was commenced in January, 1903, and she will be completed and commissioned, at her present rate of progress, about January, 1906. This will be the first vessel for the Government that the Thames Ironworks Company have completed ready for commission, although they have always done so in the case of vessels for foreign Navies.

The propelling machinery, which is being constructed at the Company's Engineering Works at Greenwich and Deptford (formerly Messrs. John Penn & Sons), is to develop 23,500-I.H.P., and will consist of two sets of inverted 4-cylinder triple-expansion engines, arranged to run at a speed of 135 revolutions per minute. There are to be two separate and independent condensers to each set of engines, and two independent twin air pumps, arranged to pump from both condensers. The boiler installation will consist of 20 Babcock and Wilcox boilers, and 6 cylindrical boilers, working with closed stoke-holds and forced draught. The working pressure of all the boilers is to be 210 lbs. per square inch.

Following are particulars of the "Black Prince" compared with the French "Renan" and the U.S.A. "California," which are of practically the same displacement; also with the British "Drake" class. It is interesting to note that while we have decreased in size, the Americans have made a corresponding increase.

Name	Black Prince.	Drake.	Renan.	California.	Washington.
Nationality	British.	British.	French.	U.S.A.	U.S.A.
Displacement, tons ...	13,500	14,100	13,560	13,400	14,500
Length, feet	480	500	515	502	502
Beam, feet	73½	71	72	70	73
Draught (mean), feet	27½	26	27	26½	26½
Main armament ...	Six 9·2-in.	Two 9·2-in.	Two 9·4-in.	Four 8-in.	Four 10-in.
Secondary armament	Ten 6-in.	Sixteen 6-in.	Twelve 6·4-in.	Fourteen 6-in.	Sixteen 6-in.
Small Q.F. guns ...	Twenty 3-prs. Eight pom-poms.	Ten 12-prs. Three 3-prs. Two Maxims.	Twenty-two 3-prs. Two 1-prs.	Eighteen 12-prs. Twelve 3-prs. Sixteen smaller	Twenty-three 12-prs. Twelve smaller
Submerged tubes ...	Three	Two	Two	Four	Four
Belt	6-in.—3-in.	6-in.—3-in.	6-in.—4-in.	6-in.—3½-in.	5-in.—3-in.
Armour deck... ...	¾-in.	4-in.	2½-in.	4-in.	3-in.
Side above belt ...	6-in.	6-in.	5-in.	5-in.	5-in.
On big guns	6-in.	5-in.—6-in.	6-in.—8-in.	6-in.	9-in.—5-in.
On secondary guns ...	6-in.	6-in.	5-in.—6-in.	5-in.	5-in.
H.P.	23,500	30,000	38,000	23,000	?
Designed speed, knots	22	23	23·5	22	22
Boilers	Babcock & cylindrical	Belleville.	Niclausse.	Babcock.	Babcock.
Coal (normal), tons ...	1,000	1,250	1,400	900	900
Coal (maximum), tons	2,000	2,500	2,300	2,000	2,000
Weight of armour, tons	—	2,700	3,400	2,219	—
Weight of machinery, etc., tons	2,250	2,500	—	2,100	—

In speed the "Black Prince" is below the "Drake" class, which reach 24 knots with a very economical coal expenditure. This speed reduction is viewed with disfavour, despite the theory that a certain 22 knots is better than a problematical 23. The "Drakes" do a certain 24, and the "Black Prince" class, it is hoped, will also exceed the contract speed by a knot. The steam generators to be fitted are of the Babcock and Wilcox type, of the latest improved pattern.

To sum up, the "Black Prince" type is better armed than the "Drake" class by at least 33 per cent. In defence it is about 20 per cent. less efficient, but it is also smaller than the "Drake" type. In speed and coal endurance there is an inferiority of approximately 8 per cent. The armament gain is so great that it more than balances any loss, and the advance is certainly commensurate with the times.

The New Battle-ships of the "Lord Nelson" Class.—The Admiralty has placed the contracts for the two battle-ships of the "Lord Nelson" class, one with Beardmore & Co., Clyde, and the other with Palmer & Co., Jarrow. Had the two lowest tenders been accepted, both would have been built on the Clyde. However, the Government wished to distribute the work. The battle-ships will be the most powerful yet designed, and will be the highest conception of science as applied to destructive power. They will be 410 feet long, by 73 feet 6 inches, and 16,500 tons burden, or 100 tons more than the ships of the "King Edward VII." class, while the speed will be 18 knots. In respect of gun power, the new ships will mark a greater advance than is indicated by this figure. The earlier ships were fitted with four 12-inch guns, four 9·2-inch breech-loaders, and ten 6-inch Q.F., whereas the new ships will have four 12-inch guns and ten 9·2-inch guns, in addition to smaller guns. An increase has also been made in the length of the guns, as the 12-inch weapons in the new ships

will be of 45 calibres instead of 40, and the 9·2-inch guns of 50 calibres instead of 45. Thus, separately as well as collectively, they will far excel in power the armament of any preceding ship. In respect of armour, an advance has also been made, for while the maximum thickness of plates on the broadside of the "King Edward VII." class is 9 inches, the more vital parts of the "Lord Nelson" class will have 12-inch armour. The engines of the new ships are to develop 16,450-I.H.P., and their cost will be about a million and a half each. They are to be ready for commission in three years' time.—*Times, Naval and Military Record, Engineer,* etc.

FRANCE.—The following are the principal appointments which have been made: Rear-Admiral—J. M. Puech, to Command of the 2nd Division of the Squadron of the North. Capitaines de Vaisseau—C. X. Ridoux to "Amiral-Gueydon"; E. A. Jacquet to "Gloire." Capitaines de Frégate—L. A. Mottez to "Tronde"; R. A. L. Pampernéel, to be Chief of Staff to Rear-Admiral Puech.—*Journal Officiel de la République française.*

State of the Navy.—The views of M. Lockroy, ex-Minister of Marine, on the enquiry now being carried on by the Extra-Parliamentary Commission on the Navy, as given to a reporter of the *Temps*, are as follows:—

"All that my friends and I have said in Parliament as regards the state of the Navy has been proved up to the hilt, and the facts are even worse than was supposed.

"Indiscipline in the crews of the fleet has been tolerated to such an extent that the *sous officiers* are no longer obeyed or respected.

"The arsenals are completely disorganised, and the *matériel* is no better than the *personnel*. At Lorient, Cherbourg, Toulon, and Rochefort nothing has been prepared, and there will soon be nothing to do; it is a case of shutting down all works.

"It has been proved that the new fleet to be constructed has been retarded from one to two years, and two years have passed without the ordering of a single torpedo-boat.

"The construction of submersibles has been stopped; we ought to have 13 new ones, and we have but 2.

"As regards the submarines sent to Saïgon, one may as well consider them as lost; they can never be of any use in the Far East, as there are no means or appliances for receiving and repairing them."

One of the members of the Extra-Parliamentary Commission gave his view as follows:—

"My impression from what we have seen is that we are not ready; this is the simple truth. Both as regards *personnel* and *matériel*, the situation is far from satisfactory. At Cherbourg, for instance, there are two cruisers, the 'Chasseloup-Laubat' and 'Friant,' supposed to be ready for sea, but neither of them is so. The artillery stores, also, both of projectiles and ammunition, have been allowed to fall too low.

"As far as the *personnel* is concerned, the officers are discouraged, favouritism being rampant to a degree unsuspected by the public, and among the *sous officiers*, a body of men up to the present the envy of foreign Navies, there is simply despair; less obeyed than the officers, they no longer receive from the men the respect due to their years of devoted service. These latter remain on shore when their ships go to sea; and the "*Internationale*" (a revolutionary

song) has more than once been heard on the forecastles. Add to this the fact that the crews are below their proper strength, and that the men say they do not intend to be worked like oxen. What is now required in the Navy is an iron hand, otherwise we shall see in the near future one of the defences of the country reduced to nothing."

An officer of experience makes the following remarks regarding the present state of discipline in the Navy:—

"Real discipline has disappeared; it may, perhaps, be re-established. But what is most serious is that the seamen's respect for and confidence in their officers have been destroyed. Insult may not be on their lips, but it is none the less in the men's hearts. A complete scission has been effected in the maritime family feeling which existed between the man and his officer, and the natural intermediary between them—the *sous officier*—has been annihilated. Formerly we spoke to our men familiarly in the second person; they were our children, and were proud of being addressed in this manner, and though we often had to speak to them sharply, we tried to punish them as lightly as we could. We were understood, and a strong bond of sympathy was established between us, based on the affection we felt for them and the respect they had for us.

"I call to mind our sailors with their gentle eyes full of devotion; but to-day hate is to be read in those same eyes—the expression is not too strong. If we give an order, the men seem to consider before executing it the consequences which a refusal may have for them, and it is only after this mental calculation that the man makes up his mind to obey, and with a shrug of the shoulders, an insubordinate glance, and his hands in his pockets, he lounges away, dragging his feet after him like a longshore loafer.

"Only a few months ago on board a man-of-war during the officers' dinner, a packet of papers was thrown down the skylight on to the dining table. When I heard of this I came to the conclusion that the family feeling of solidarity which used to bind us together no longer existed."

Here are three cases of indiscipline given by the *Temps* as happening on board the same ship, showing how authority is undermined by interference of persons outside the Navy:—

A stoker, on being found fault with at work by a petty-officer, told him to leave him alone and be ——, or he would set his cousin the *député* upon him, who is a friend of the Minister of Marine.

A seaman applied for leave to the captain, at the same informing him that whatever his answer he would get his leave all the same.

Another seaman asked for three months' leave a few days after a Ministerial circular had been issued suspending all leave. He was consequently informed that his application could not be granted. Nevertheless, eight days later a telegram arrived from the Ministry of Marine directing leave to be granted to the man for private affairs.

Notes on Submarines.—The new submarine "X" was launched at Cherbourg on the 15th ult. She is one of a new type, and with two others, "Z" at Rochefort, and "Y" at Toulon, is being constructed for experimental purposes. Of the three "X" is the smallest, her displacement being only 168 tons, as against 202 of "Z," and 213 of "Y." Her plans are by M. Romazotti, who designed the "Morse" and "Naïade" types. Her dimensions are as follows:—Length, 122 feet; beam, 10 feet; draught of water, 6 feet 6 inches. Her motor is to have a power of 220-H.P.,

which should give a speed of 10·5 knots, and she will have accumulators and an explosion motor.

Four new submarines are to be laid down at Rochefort, after designs by M. Petithomme. They will be somewhat smaller than the "Castor" type, and they will only have a displacement of 44 tons. Six of the same type are to be constructed at Cherbourg, and the whole group will be known as "Guêpe" No. 1, No. 2, up to 10.

The submarine "Otarie," of the "Lynx" type, recently launched at Rochefort, went successfully through its trials. 80 feet long, 8 feet broad, with a displacement of 68 tons, the "Otarie" has a speed of only 8 knots. This altogether inferior speed is the greatest defect of submarines of this type.

These submarines are provided with the Panhard-Levassor petrol motor, which enables them to navigate on the surface and to charge their accumulators meanwhile, till ready to be submerged.

The cruiser "Foudre," torpedo-ship, has recently transported to Saïgon two submarines of this type.

Trials have been carried out at Cherbourg between the submarine "Z" and the submersible "Aigrette," from Rochefort and Toulon respectively, before a Commission presided over by Rear-Admiral Philibert. Submarine Z was built at Rochefort on the designs of M. Mangas, naval engineer. Its length is 142 feet; displacement, 200 tons; I.H.P., 190; speed, 11 knots. It is provided with an explosion motor.

The submersible "Aigrette," designed by M. Laubœuf, is 146 feet long, with displacement of 172 tons; I.H.P., 172; speed, 10½ knots; explosion motor.

Called upon by M. Pelletan to confer with him on the important question of increasing the radius of action of submarines, M. Laubœuf, Naval Engineer-in-Chief, to whom we owe the excellent submersibles of the "Narval" type, which for two years have worked with the Northern Squadron without giving the least trouble, has submitted to the Minister a scheme for a new submersible where radius of action will be far greater than former ones, the displacement, however, being equal to those now in use.

Another point is that the time of immersion from the surface to below the surface will be greatly reduced, two minutes at the most, whereas formerly it took seven or eight minutes. It is easy to grasp the importance M. Laubœuf's idea is diminishing the time of diving. A submersible can be seen at least three miles by a destroyer, and, going at full speed, it takes five or six minutes for the destroyer to reach and attack the submersible, which formerly had not the time to plunge and shelter itself behind its liquid armour. Now, therefore, the only defect in the submarine has disappeared. The increase of radius of action will be arrived at owing to new motors and accumulators, which, of equal weight, will possess a capacity double of those now in use.

The Défenses-Mobiles and Submarine Stations in 1905.—The Estimates for 1905 show some improvement in the constitution of the *Défenses-Mobiles*: the old second-class torpedo-boats are gradually being replaced by first-class ones, and although there has been no general modifications in the organisation of the different home centres, yet steps have been taken to have all the different exercises carried out as far as possible under war conditions.

In the colonies the existing *Défenses-Mobiles* have been reinforced and some new centres created.

The submarine stations have been multiplied, thanks to the numerous small vessels of the "Naïade" type, which should be ready to enter on service.

Défenses-Mobiles.—1st Arrondissement.—There are two important centres—Dunkerque and Cherbourg. Dunkerque, which is an advance post, has in permanent commission the destroyer "Durandal" and six first-class boats for drill purposes, which constitute a complete offensive division. *En disponibilité*, six first-class boats, which would become the 1st offensive division, and the *torpilleur de haute-mer* "Grenadier." In reserve, two first-class boats.

At Cherbourg, where the *Défense-Mobile* will have to play an important part, there will be *en disponibilité* two complete offensive divisions, that is, twelve good first-class boats with their *divisionnaires*, the destroyers "Yatagan" and "Harpon." The training division consists of six first-class boats of a somewhat older type, with the torpedo-aviso "Bombe" as senior officer's vessel. There remain in reserve five first-class boats and six second-class. In commission, in addition are the *torpilleur de haute-mer* "Archer" and a first-class boat for training quartermasters in pilotage, the "Zouave" and a second-class boat for training stokers, and a second-class boat for duty with the submarines.

2nd Arrondissement.—Here also there are two main centres, Brest and Saint Servan; but at the last-named there are only two first-class boats in commission and two *en disponibilité*.

At Brest, on the other hand, there is one of the most important and best organised of the *Défenses-Mobiles*. The two offensive divisions are composed of six of the new *torpilleurs de haute-mer* of the "Siroco" type, with armoured sides, and six of the newest first-class boats. Then there are in reserve two *torpilleurs de haute-mer*, the "Lancier" and "Mangini," four first-class boats, and seven second-class. The instructional division consists of the destroyer "Salve," the senior officer's ship, four first-class boats, and two second-class, with two first-class boats attached to the pilotage and stoker schools respectively.

3rd Arrondissement.—The only centre is at Lorient, and the offensive division will no doubt in war have to co-operate with those of Brest. The division will consist of the torpedo-aviso "Lance," two first-class and two second-class boats for training duties. *En disponibilité* will be the destroyer "Sagaie" and eight first-class boats; in the reserve, two first-class and two second-class boats, with the *torpilleur de haute-mer* "Grondeur" as the training school for pilotage.

4th Arrondissement.—Rochefort is the only centre, and the *Défense-Mobile* is constituted almost the same as at Lorient. The division will consist of the destroyer "Couleuvrine," two first-class and one second-class boat for training, one first-class for pilotage school, and in reserve four first and two second-class boats.

En Disponibilité, an offensive division consisting of the destroyer "Arquebuse" and six first-class boats.

5th Arrondissement.—Toulon and Corsica are the two centres. At Toulon there are in commission the destroyer "Dragonne," with four first-class and two second-class boats for training, two *torpilleurs de haute-mer* for the school of pilotage, and the same for training stokers. *En Disponibilité*, six *torpilleurs de haute-mer* and six first-class torpedo-boats, forming two offensive divisions with the destroyers "Hallebarde" and

"Pertuisane." In reserve, two *torpilleurs de haute-mer*, ten first-class, ten second-class and three third-class boats. There are, further, for service with the gunnery and torpedo-schools and the submarines, seven second-class boats and a vedette-boat.

At Ajaccio, in Corsica, there are in commission seven first-class boats and the destroyer "Lévrier" *en disponibilité*, the *torpilleur de haute-mer* "Chevalier," the destroyer "Epée," with seven first-class boats; in reserve, two first-class boats.

Algeria.—The grand centre of the *Défense-Mobile* of Algeria is for the future to be Oran, on account of its proximity to Gibraltar.

Algiers.—There will be the destroyer "Rapière" and three first-class boats in commission; *en disponibilité*, three first-class boats and one in reserve, altogether one complete division.

Oran.—There will be the destroyer "Dague" and six first-class torpedo-boats always in commission; *en disponibilité*, the destroyer "Pique" and a complete division of six first-class boats; in reserve, two first-class boats.

Tunis.—There will be in commission the destroyer "Dunois" and six first-class boats, with two *torpilleurs de haute-mer*, the "Aventurier" and "Agile," for the pilotage schools; *en disponibilité*, six *torpilleurs de haute-mer* and three first-class boats; in reserve, one *torpilleur de haute-mer* and two first-class boats.

In the Colonies:—

Cochin-China.—Rach-Dua, Cape St. James.—In commission, the destroyer "Takou" and four first-class boats; *en disponibilité*, four first-class boats; in reserve, two first-class boats.

Saïgon.—In commission, one first-class and two vedette torpedo-boats. At the dockyard in Saïgon they now have all the necessary plant for building first-class boats.

Tonkin.—In commission, destroyer "Flamberge" and three first-class boats; *en disponibilité*, three first-class boats.

Diego-Suarez, Madagascar.—Three first-class boats with three *en disponibilité*, constituting a complete division.

Dakar, West Coast of Africa.—Three first-class boats, with three *en disponibilité*.

The Stations of the Submarines.—There will be a considerable increase in the number of these stations in 1905; there are only four of these in existence at present, or five, if Indo-China is included, where, however, nothing is ready for the reception of the boats; during 1905 these stations are to be increased to twelve.

1. *Dunkirk.*—Four submarines, which will be in commission the whole year; two of these, the "Français" and "Algérien," have been on trial for a long time, and have shown their good qualities; the other two, the "Gnôme" and "Lutin," are of a newer type.

2. *Cherbourg.*—Seven submersibles, the "Narval," "Sirène," "Silure," "Espadon," "Triton," to which will be added two others, the "Aigrette" and "Cigogne," under completion at Toulon, and two submarines proper, the "Morse" and "X" of a new type.

3. *Toulon.*—In addition to the "Gymnôte" and "Gustave-Zédé," which were the foundation of our flotilla, there will be in commission next year for the whole twelve months, the small submarines "Loutre,"

"Grondin," "Anguille," and "Y," a large submarine of quite a new type, which is under construction, and one submersible, the "Oméga," in commission for seven months.

4. *Ajaccio.*—The two small submarines "Alose" and "Truite."

5. *Bonifacio.*—The small submarines "Souffleur" and "Dorade."

6. *Algiers.*—The two small submarines "Perle" and "Esturgeon"; the following vessels of the same type will be stationed at the undermentioned places on the North African Coast :—

7. *La Goulette.*—The submarines "Castor" and "Otarie."

8. *Susa.*—The submarines "Bonite" and "Thon."

9. *Biserta.*—The submarines "Farfadet" and "Korrigan," and one of the smaller type, the "Phoque," and one of a new type "Z," now completing at Rochefort.

There are three other colonial stations, which will each have a group of the "Naïade" type of submarine, viz. :—

10. *Rach-Dua (Cape St. James) or Saïgon.*—The "Protée" and "Lynx."

11. *Tonkin.*—"Oursin," "Méduse."

12. *Diégo-Suarez.*—"Naïade," "Ludion."

Although this long list of forty submarine units seems imposing, they are, however, of various value. To speak the truth, if the five submersibles of the "Narval" type, the "Gymnôte" and "Gustave Zédé," the three submarines of the "Morse" type, and the four of the "Gnôme," can be counted on with some degree of certainty, the same cannot be said of the others. The small automobile submarines of the "Naïade" type have not been altogether satisfactory, and the question has been asked whether it would not be better to remove their explosion motors, and only keep the electric system; to do this, however, is to reduce their radius of action.

The opinion is also freely expressed that the Ministry of Marine has embarked too lightly on the construction of a large number of submarine units, before proper experiments have been carried out, and that it would have been wiser to have limited the number of experimental types, while continuing to construct vessels of the "Sirène" and "Français" class, which, in spite of their imperfections, would prove a real and practical addition to our submarine stations.—*Le Temps, Le Yacht,* and *Le Moniteur de la Flotte.*

ITALY.—The following appointments have been made: Rear-Admirals — Chierchia to be Director of the Military Department at the Ministry of Marine; Annovazzi to be President of the Ships' Trials' Commission; Marchese to be Inspector of the Hydrographical Department and of the Naval Academy; Bianco to be Director of the Dockyard at Tarentum; Caer to be Director of the Dockyard at Naples; Marselli to be Director of the Dockyard at Venice; Moreno to command of the Seamen's Corps.—*Gazetta Ufficiale.*

The Organisation of the Fleets.—By a Royal Decree, the following regulations for the distribution of the naval forces have been laid down :—

The Mediterranean Squadron, under the command of a vice-admiral, is to consist of battle-ships, cruisers, and a sufficient number of torpedo-boats; its base of operations being the West Coast, from Spezia to Messina.

In addition there will be a Reserve Division, under the command of a rear-admiral, consisting of armoured cruisers and a strong contingent of torpedo-boats, to be stationed along the Adriatic Coast, with headquarters at Ancona. The base of operations of this division is to be the Ionian and Adriatic Sea, with Tarento as a *point d'appui*.

The Red Sea and Indian Ocean Division is to consist of small cruisers and vessels, under command of a captain, and is to protect Italian interests in Erythrea, Benadir, Somaliland, and at Zanzibar.

The Trans-Oceanic division, under command of a rear-admiral, is to consist of powerful and fast cruisers, and is to be employed to support Italian interests in foreign waters wherever necessary.

A small cruiser division, under the command of a senior captain, is to be stationed on the coasts of Argentina, Uruguay, and Brazil. Should it be necessary to increase the squadron to a full division, it will be placed under the orders of a rear-admiral.

In place of the old Torpedo-boat Inspection, a special Torpedo-boat Flotilla Command is to be established, with headquarters at Civita-Vecchia. The command will be held by a senior captain, and a cruiser will be placed at his disposal as his flag-ship.

The command of the fortress of Maddalena and the naval division in its waters is to be held by a vice-admiral.

Naval Estimates, 1904-05.—The constitution of the Fleets in commission is as follows:—

Mediterranean Squadron, under the command of Vice-Admiral C. Morin, 7 months in full commission and 5 with reduced complements.

First-class battle-ships — "Sicilia" (flag-ship of Commander-in-Chief), "Regina Margherita," "Sardegna," "Re Umberto," "Saint Bon," "Emanuele Filiberto."

First-class armoured cruisers—"Carlo Alberto" (flag-ship of Rear-Admiral Renaudy, Second-in-Command), "Varese," "Garibaldi."

Third-class cruisers—"Minerva," "Agordat," "Partenope."

Destroyers—"Turbine," "Fulmine," "Lampo," "Aquilone," "Borea," "Nembo," "Euro," "Dardo," "Freccia."

Tank-ship—"Tevere."

Reserve Division, under the command of Rear-Admiral G. Bettolo, 3 months in full commission, and 9 with reduced complements.

First-class battle-ships—"Dandolo" (flag-ship of Commander-in-Chief), "Sardegna," "Re Umberto," "Andrea Doria."

Second-class cruiser—"Giovanni Bausan."

Four destroyers and the torpedo-boats belonging to the *Défenses-Mobiles* of Ancona and Taranto, 18 in number.

The "Giovanni Bausan" is to be replaced by the new first-class armoured cruiser "Francesco Ferruccio" as soon as she is ready.

The Trans-Oceanic Squadron (China), commanded by Rear-Admiral F. Grenet.

First-class armoured cruiser—"Marco Polo" (flag-ship of Commander-in-Chief).

Third-class cruisers—"Piemonte," "Puglia."

Red Sea and Indian Ocean—

Corvette—"Cristoforo Colombo."

Third-class cruiser—"Coatit."

First-class gun-boat—"Volturno."

Despatch vessel—"Galileo."

The American Station.
Third-class cruiser—"Liguria."

The Levant.
Third-class cruiser—"Iride."

Constantinople.
Despatch-vessel—"Sesia."

Training Ships.
Corvette—"Flavio Gioia," attached to Naval Academy, in commission 10 months.
First-class battle-ship "Lepanto" and torpedo despatch-vessel "Saelta," as gunnery school-ships.
Third-class battle-ships—"Castelfidardo" and "Affondatore" as torpedo-school-ships.
The corvette "Caracciolo," with the special service vessels "Miseno" and "Palinuro," as boys' school-ships, in commission, 7 months.

Superior Torpedo-Boat Command—
Second-class cruiser—"Etna" (flag-ship).
Sea-going torpedo-boats — "Aquila," "Avvoltoio," "Falco," "Nibbio," "Sparviero," "Condore," "Pellicano."
First-class torpedo boats—Nos. 60, 62, 66, 67, 69, 70, 71, 82, 88, 90, 92, 93, 94, 98, 99, 107, 108, 114, 118, 119, 120, 121, 122, 124.
Torpedo-boats independent of Superior Command, stationed as follows:—Genoa, 6; Messina, 18; Maddalena, 18; Venice, 8; Taranto, 12; Ancona, 4.

Mobile Defence.
Spezia, 12 torpedo-boats; Taranto, 14; Venice, 6.

The value of the floating material of the Fleet for 1904-05 is given as 550,926,277 lire (£22,037,015 2s.), while four torpedo-boats and two harbour ships are to be struck off the list during the year.

The amount demanded for ships in commission, including the ships with reduced complements or in the Reserve, amounts to 6,089,200 lire (£243,568), divided as follows:—

	Lire.	£	s.
Mediterranean Squadron	1,843,000	= (73,720	0)
Reserve Division and Torpedo-boats	945,000	(37,800	0)
Trans-Oceanic Squadron	453,000	(88,120	0)
Red Sea and Indian Ocean Division	339,000	(13,560	0)
American Station	117,000	(4,680	0)
The Torpedo-boat Command	473,200	(18,928	0)
Vessels on Special Service Abroad	207,000	(8,280	0)
Training Ships	542,000	(21,680	0)
Special Ships on General Service	240,000	(9,600	0)
" " Departmental	424,000	(16,960	0)
Ships in Reserve or *en Disponsibilité*	506,000	(20,240	0)
Total	6,089,200	(243,568	0)

—*Stato di Previsione della Spesa di Ministero della Marine.*

Steam Trial.—The official trials of the new first-class battle-ship "Regina Margherita" took place in the Gulf of Genoa in July last, and it may be said at the outset that they have proved eminently satisfactory. The contract fixed 6 hours' steam trial at 16,000-I.H.P., with natural draught and coal consumption not to exceed 1·87 lbs. per I.H.P. per hour; and one 1¼ hours' steam trial at full power of 19,000-I.H.P. with assisted draught at an air pressure not greater than ¾ inch.

The first trial at natural draught took place on July 16th, 1904; the mean power developed during the 6 hours' run was 17,782-I.H.P.; the coal consumption was 1·84 lbs. per I.H.P. per hour.

The second trial, with assisted draught, took place on July 21st; the mean power developed during the 1½ hours' run was 20,664-I.H.P., with an air pressure of $\frac{3}{16}$ in., and a coal consumption of 1·98 lbs. per I.H.P. per hour.

In both the trials all the main and auxiliary engines worked very satisfactorily, and the boilers produced the steam supply without difficulty. The results of the two trials may be tabulated as follows:—

Report of 6 hours' coal-consumption steam trial at 16,000-I.H.P. with natural draught, July 16th:—Draught of water, forward 27 feet, aft 27 feet; steam pressure in boilers, 261 lbs; revolutions per minute, starboard 115·4, port 114·6; mean collective I.H.P., 17,782; speed of vessel, 19·3 knots, coal consumption per I.H.P. per hour, 1·84 lbs.

Report of 1½ hours' full-power steam trial, July 21st:—Draught of water, forward 27 feet, aft 27 feet; steam pressure in boilers, 279 lbs; revolutions per minute, starboard 120·8, port 121·2; mean collective I.H.P., 20,664; mean air-pressure in stokeholds, $\frac{3}{16}$ in.; speed of vessel, 20·2 knots; coal consumption per I.H.P. per hour, 1·98 lbs.

The whole of the machinery was constructed in the shops of the firm of Messrs. Gio. Ansaldo, Armstrong & Co., the main and auxiliary engines and the Niclausse boilers being constructed in the mechanical works of the firm in Sampierdarena; while all the cast-steel pieces for the engines and malleable cast-iron pieces for the boilers were furnished by the steel works of the firm at Cornigliano; the propellers and bronzes generally were furnished by the Delta Works of the firm at Cornigliano; and, finally, the electric motors for the fans, extractors, gas-hoisting engines, etc., were constructed at the electrical works of the firm at Cornigliano.—*Engineering.*

United States. — *Launching of the "Connecticut" and "Milwaukee."* — On 29th September, eighteen months after the laying of her keel, the United States battle-ship "Connecticut," which shares with the British battle-ships of the "King Edward" class the distinction of being the largest yet constructed, was launched at the New York Navy Yard, Brooklyn. The event was marked by the customary ceremonies, and it was witnessed by a great crowd of visitors, who had been admitted to the grand stand and enclosures of the Navy Yard by tickets of invitation. It is an historical fact, deserving of mention in this connection, that the "Connecticut" was launched from the very spot at which the old prison-ship "Jersey" was beached, after she had performed her notorious duties during the Revolutionary war; and when the piling was being driven for the building ways, no little difficulty was experienced in getting it down through the remains of the sunken vessel.

The "Connecticut" and the sister-ship "Louisiana," which was launched a month ago at the Newport News Yard, were authorised by Act of Congress on 1st July, 1902, and under the terms of the Act the contract for one of these vessels was to be let to a private firm, and the other ship was to be built in a Government yard. The determination of Congress to renew the practice of building war-ships at the Navy yards was brought about by the urgent representation of the Navy Department, which claimed that with its present plant and fine organisa-

tion, such a yard as that at New York was thoroughly equipped for the speedy and economical construction of war-ships. Consequently, the construction of the "Connecticut," being undertaken at the same time as that of the "Louisiana," has been watched with the keenest interest; and it is extremely gratifying to the Government that she should have been completed in practically the same space of time as the contract-built vessel.

The "Connecticut" is 450 feet in length on the water-line, 76 feet 10 inches in beam; and when the ship is fully equipped ready for sea, with all stores on board and a normal supply of coal in the bunkers, she displaces 16,000 tons on a draught of 24 feet 6 inches. Her full load displacement with her bunkers filled and stores aboard for an extended cruise is 17,666 tons. She is propelled by twin-screw, vertical, triple-expansion engines, of 16,500-I.H.P., which are designed to drive her at a speed of 18 knots. The normal coal supply is 900 tons, but her bunker capacity is 2,200 tons. When the ship is fully loaded, her maximum draught aft is 26 feet 9¼ inches. Her boilers are of the Babcock & Wilcox type, and she carries enough coal to enable her to steam at a speed of 10 knots continuously for a distance of 5,275 miles.

Officially, the "Connecticut" is known as a sea-going battle-ship with two 12-inch and four 8-inch barbette turrets. She is remarkable for her great offensive and defensive powers, in both of which she is unexcelled by any foreign ship. All of her armour is of the best Krupp face hardened type. The protection consists of a water-line belt, which extends from stem to stern. For one-third of her length amidships, the belt is 11 inches thick at the top and 9 inches thick at the bottom, and from these dimensions it tapers fore and aft to an even thickness of 4 inches at the bow and stern. Above the main belt, and for the distance between the main barbettes, there is a continuous wall of side armour, 7 inches in thickness reaching from the main belt to the main deck. At the ends of this armour, bulkheads of 7-inch armour extend athwartship to a connection with the main barbettes. There is a continuous protective deck, which is 1 inch thick on the flat and 2½ inches thick forward and aft, the thickness of the side slopes being 3 inches. The main barbettes are protected by 10 inches of armour, and the main turrets by 12 inches. The four turrets of the 8-inch guns are protected by 8 inches of armour, while the barbettes below carry 6 inches.

The unusually powerful battery is composed of four 12-inch 40-calibre guns in two turrets fore and aft, eight 8-inch 45-calibre guns in four turrets, two on each broadside, the two forward turrets having an arc of fire from dead ahead to a point well aft of the beam, and the after pair of turrets is similarly able to fire from forward of abeam to dead astern. On the gun deck, and firing through casemates in the 7-inch side armour, is a powerful battery of twelve 7-inch 50-calibre guns. The 7-inch gun is a new piece of high velocity and great penetration, that in these vessels takes the place of the usual 6-inch guns. This piece has a velocity of 2,900 feet a second, and a muzzle energy of 9,646 foot-tons. It fires a projectile of 165 lbs. with sufficient energy to penetrate 28·7 inches of iron at the muzzle. This is a great advance over the 6-inch guns which will be mounted on the "Georgia" class, the smaller weapon having the same velocity and firing a 100-lb. projectile with a muzzle energy of 5,840 foot-tons and a penetration of iron at the muzzle of 24·2 inches. The armament also includes twelve 3-inch 14-pounder rapid-fire guns, six of them mounted on the gun deck, two in the bow and four at the stern, and firing through casemates protected by 2 inches of

armour, the other six being mounted on the main deck in broadside between the 8-inch gun turrets, with 2 inches of protection on the casemates. There are also twelve 3-pounders and fourteen machine guns distributed on the roof of the turrets, the superstructure, the bridges, and in the fighting tops. The forward conning tower, which incloses the base of the military mast, is protected with 9 inches of Krupp steel, and the after conning tower, sometimes known as the signal tower, which is located beneath the after bridge, has 5 inches of protection. As originally designed, the "Connecticut" does not carry any submerged torpedoes, but in consequence of agitation of the subject it was subsequently decided to provide her with four such tubes, two located in a compartment forward and two in a compartment aft, in a position slightly forward and aft, respectively, of the 12-inch turrets.

Although she is not such an important vessel as the "Connecticut," the "Milwaukee," of 9,700 tons displacement, which was launched on the 10th of the same month at the yards of the Union Iron Works, San Francisco, is a vessel which a few years ago would have excited widespread attention.

She is a twin-screw protected cruiser, and a sister ship to the "St. Louis" and the (new) "Charleston," now building at the yards of Neafie & Levy and the Newport News Shipbuilding and Dry Dock Company. The dimensions of the "Milwaukee" are :—Length on normal load water-line, 424 feet; beam, extreme, 66 feet; mean draught, 22 feet 6 inches; displacement, about 9,700 tons; speed, 22 knots, bunker capacity, 1,500 tons.

The "Milwaukee" will have a protective deck of nickel-steel the entire length of the ship, 1½ inches thick on flat and 2½ inches on slopes. The nickel-steel plates are laid on ¼-inch steel plating, giving the deck a total thickness of 2 and 3 inches. The main side armour belt is 7 feet 6 inches wide and 4 inches thick, and is placed abreast of boilers and engines for a distance of about 196 feet. Above the main belt is the lower casemate, with a uniform thickness of 4 inches, protecting the central portion of the hull for a distance of about 196 feet, and extending up to the gun deck. Above the lower casemate is the upper casemate, with a uniform thickness of 4 inches, protecting the central portion of the hull for a distance of about 136 feet, and extending up to the main deck. At each end on the berth and gun decks, and worked in to meet the side armour, is athwartship armour 3 inches in thickness. There will be worked in from the protective deck to above the water-line the usual cellulose cofferdam.

The main battery consists of fourteen 6-inch breech-loading rapid-fire rifles of 50 calibres in length. Of these six are mounted on the main deck, and eight are mounted on the gun deck. The secondary battery consists of eighteen 3-inch breech-loading rapid-fire rifles, of 50 calibres in length; twelve 3-pounder semi-automatic guns; four 1-pounder automatic guns; and eight 1-pounder rapid-fire guns; there are also two 3-inch field guns, two machine guns 0·30 calibre, and eight automatic guns 0·30 calibre.

The "Milwaukee" will have twin engines of the vertical, inverted cylinder, direct-acting, triple-expansion type, each with a high-pressure cylinder 36 inches, an intermediate-pressure cylinder 59 inches, and two low-pressure cylinders 69 inches in diameter; the stroke of all pistons being 45 inches. The order of the cylinders, beginning forward, is :—Forward low-pressure, high-pressure, intermediate-pressure, and after low-pressure. The framing of the engines consists of forged-steel columns trussed by

forged steel stays; the bedplates are of cast steel. The I.H.P. of both engines will be 21,000 when making about 133 revolutions per minute and with steam pressure of 250 lbs. at the throttle. The designed speed on trial is 22 knots.

There will be 16 boilers of the water-tube type, placed in four water-tight compartments forward of the engine rooms; the forced draught system will consist of blowers discharging into closed ashpits, there being one blower for each boiler. There will be a complete electric plant on board, consisting of two 150-kilowatt and three 50-kilowatt generators, direct connected to compound engines using steam at 150 lbs. Over 78 electric motors will be installed, of from 1 to 30 H.P.; they will be used to operate boat cranes, deck winches, blowers for ventilation, ammunition hoists, etc.

The "Milwaukee" will have a complement of 645 officers and men.

A few years ago the "Milwaukee" would have ranked as an armoured cruiser; but to-day, because of the unprotected ends at the water-line, and the weakness of the side armour (only 4 inches in thickness), she is classed in the Navy List only as a protected cruiser.—*Scientific American.*

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR NOVEMBER, 1904.

Colonels—Colonel H. A. Walsh, from commanding 20th Regimental District, to be Chief Recruiting Staff Officer. Colonel J. S. S. Barker, C.B., from h.p., to be a Colonel on the Staff for Royal Artillery in India, and is granted the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel and Brevet Colonel J. W. Sill from h.p., to be a Colonel on the Staff for Royal Engineers, and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel C. H. Darling, from Assistant-Inspector-General of Fortifications at Headquarters, to be a Colonel on the Staff for Royal Engineers, and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel T. P. Battersby, Ordnance Officer, Second Class, to be an Ordnance Officer, First Class, with the substantive rank of Colonel in the Army. Lieut.-Colonel R. T. H. Law, Ordnance Officer, Second Class, to be an Ordnance Officer, First Class, with the substantive rank of Colonel in the Army. Colonel (temp. Brigadier-General) J. B. Woon, C.B., I.A., to command a Second Class District in India, retaining the temporary rank of Brigadier-General whilst so employed. Colonel J. A. H. Pollock, C.B., I.A., to command a Second Class District in India, and is granted the temporary rank of Brigadier-General whilst so employed. Colonel H. Mullaly to be D.Q.M.G., Army Headquarters, India. Colonel C. de C. Hamilton to be A.A.G., Army Headquarters, India. Lieut.-Colonel and Brevet Colonel R. C. G. Mayne, C.B., I.A., A.D.C., to be a Colonel on the Staff, and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel W. du G. Gray, C.B., I.A., to be a Colonel on the Staff, and is granted the substantive rank of Colonel in the Army. Colonel F. J. Aylmer, V.C., to be a Colonel on the Staff. Lieut.-Colonel and Brevet Colonel H. Lysons, V.C., from the Bedfordshire Regiment, to be A.Q.M.G., Madras Command, and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel J. L. Keir, from Royal

Artillery, to be an A.A.G., and is granted the substantive rank of Colonel in the Army. Colonel R. B. Adams, V.C., C.B., I.A., A.D.C., a Colonel on the Staff in India, is granted the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel and Brevet Colonel H. A. Scott, from h.p., to be a Colonel on the Staff for Royal Artillery, and is granted the substantive rank of Colonel in the Army.

India.—*Army Reorganisation.*—The following Indian Army Order was issued, dated 28th October :—"The Commander-in-Chief is pleased to announce that the following recommendations made by His Excellency with regard to the higher organisation of the Army in India have been approved by the Secretary of State and sanctioned by the Government of India. The principle underlying these new arrangements is that the Army in peace should be organised and trained in units of command similar to those in which it will take the field. Under the new organisation India (exclusive of Burma) will be divided into three Commands, each Command will comprise three Divisions, and each Division will consist of one cavalry and three infantry brigades, with divisional troops composed of cavalry, artillery, sappers, pioneers, etc., together with such additional troops as may be required for the maintenance of internal order in the divisional area when the Division itself is withdrawn for war. It will be obvious that the adoption of this organisation involves considerable redistribution of troops, which cannot be fully carried out until new barracks and lines have been constructed in various places. The completion of this building programme requires time, and the new scheme in its entirety cannot, therefore, be brought into force at once. It is, however, possible to inaugurate the necessary changes of organisation immediately, their completion being carried out gradually. With this object in view the *ad interim* organisation will be that shown in Appendix A. The present Madras Command, together with the staff attached to it, will cease to exist, with the exception of certain appointments shown in Appendix B, which will be temporarily transferred to the Secunderabad Division. Separate orders will be issued regarding the clerical establishment. The other three Commands will remain as at present, subject to the alterations in their respective boundaries which are indicated in Appendix A. They will retain their present staffs. The Staffs of Divisions will be those now sanctioned for 1st Class Districts, except in the cases of Burma and Secunderabad, for which provision is made in Appendix B. Brigades will have a staff of one Deputy-Assistant-Adjutant-General and one Brigade-Major, except Bombay, which will have a second Deputy-Assistant-Adjutant-General in addition, and, excepting also the brigades commanded by colonels on the staff, which will have one brigade-major. Colonels on the staff will also have one second class station staff officer with each, except at Umballa, Secunderabad, and Bangalore. Burma District will remain independent, the Lieutenant-General Commanding retaining his powers and continuing to correspond direct with Army Headquarters. The Secunderabad Division will, for the present, remain independent of any Command, and will be on precisely the same footing as Burma with regard to the powers of the General Officer Commanding. He will correspond direct with Army Headquarters. The boundaries of the Divisions are shown in Appendix A, and General Officers Commanding Divisions will consider the question of the most suitable boundaries for subsidiary commands within their respective

divisional areas, submitting their recommendations (through the Lieut.-Generals Commanding) to Army Headquarters for approval as early as possible.

Orders regarding the necessary transfers of officers, subordinates, and establishments, will be issued by Army Headquarters and by the departments concerned. Officers commanding brigades, including colonels on the staff, will have all the powers which are now exercised by General Officers Commanding Districts. General Officers Commanding Divisions will, for the present, exercise the same powers as they now possess as Officers Commanding First Class Districts, but the Commander-in-Chief hopes very shortly to increase these powers largely, so as to enable them to dispose locally and without reference to Command Headquarters of all questions except those which affect the Army as a whole, or more than their own Divisions. These questions must necessarily continue to be referred to a higher authority. The powers of Lieut.-Generals of Commands will remain as at present. His Excellency desires that all these officers will take the fullest advantage of the powers granted them, and wishes to impress on them that an officer who habitually refers questions for orders shows himself incapable of assuming responsibility, and therefore wanting in one of the most essential qualifications for higher command. The proposed devolution of authority to General Officers Commanding Divisions is intended to relieve Lieut.-Generals of Commands from much of the less important business with which they now deal, and thus to leave them at leisure to devote far more of their time and personal attention than is now possible to superintending the training for war of their three Divisions. It must be fully realised that the keynote of this change in organisation is to secure complete and thorough training for war in recognised war formations, so as to enable the Army to take the field in the highest state of efficiency, and with the smallest possible dislocation of the peace organisation. It is, therefore, to improve war training that Officers Commanding Brigades, Divisions, and Commands must specially devote their energies if the full benefits of the new organisation are to be realised in practice. The Commander-in-Chief looks confidently to these officers for their loyal support and co-operation in his measures for increasing the efficiency of the Army in India."

Appendix A shows in detail the *ad interim* organisation referred to above.

Appendix B shows the Divisional, Brigade and Station Staff appointments to be created.—*Pioneer Mail.*

ARGENTINE REPUBLIC. — *Army Effective for the Current Financial Year.*—The following are the latest official figures :—

1.—CORPS OF OFFICERS.

4 lieut.-generals, 6 divisional and 12 brigadier-generals, 84 colonels, 185 lieut.-colonels, 190 majors, 245 captains, 260 first lieutenants, 280 lieutenants, and 300 sub-lieutenants; altogether, 1,566 officers.

2.—TROOPS.

a. Infantry.—2 rifle battalions of 4 companies, each with 28 officers, 82 non-commissioned officers, 32 volunteers, 20 fife and drums, 200 two years' men, 120 men with 6 months' service, 2 gunsmiths, and 2 shoemakers; total, 486.

2 battalions of mounted infantry of 4 companies, each with 28 officers, 82 non-commissioned officers, 32 volunteers, 12 musicians, 200 men of 2

years' and 120 with 6 months' service, with 2 mechanics, 2 saddlers, 2 shoemakers; total, 480.

14 line battalions, with 194 officers, 574 non-commissioned officers, 224 volunteers, 140 musicians, 1,400 men with 2 years', 840 men with 6 months' service, 14 gunsmiths, 14 shoemakers; total, 3,400.

b. Cavalry.—2 regiments of mounted gendarmes, each with 4 squadrons, with 36 officers, 90 non-commissioned officers, 520 volunteers, 20 trumpeters, 2 mechanics, 2 saddlers, 2 farriers, and 2 shoemakers; total, 674.

11 line regiments of 4 squadrons each, with 154 officers, 407 non-commissioned officers, 176 volunteers, 110 trumpeters, 880 men with 2 years' and 670 men with 6 months' service, 11 mechanics, 11 saddlers, 11 farriers, and 11 shoemakers; total, 2,441.

c. Artillery.—5 field artillery regiments of 4 batteries each, with 70 officers, 205 non-commissioned officers, 100 volunteers, 50 trumpeters, 700 gunners with 2 years' and 400 with 6 months' service. In addition there are 5 mechanics, 10 saddlers, 10 farriers, 5 carpenters, and 5 shoemakers; total, 1,560.

3 mountain artillery regiments of 3 batteries each, with 33 officers, 93 non-commissioned officers, 45 volunteers, 30 trumpeters, 315 men with 2 years' and 180 with 6 months' service. In addition there are 3 mechanics, 6 locksmiths, 6 farriers, 3 carpenters, and 3 shoemakers; total, 717.

d. Engineers.—4 battalions of 2 companies each, with 2 officers, 68 non-commissioned officers, 16 fife and drums, 40 volunteers, 280 men with 2 years' and 120 men with 6 months' service, 2 mechanics, 1 electrician, 1 gunsmith, and 4 shoemakers; total, 553.

e. Transport. — 2 companies with 5 officers, 17 non-commissioned officers, 20 volunteers, 4 trumpeters, 30 men with 2 years' and 40 men with 6 months' service, 1 mechanic, 1 locksmith, 1 carpenter, and 1 shoemaker; total, 120.

f. Medical Corps.—At the head of this are 3 surgeon-generals with the rank of brigadier-general, 5 Army surgeons with the rank of colonel, 6 divisional surgeons with the rank of lieut.-colonel, 6 brigade surgeons with the rank of major, and 50 regimental surgeons with the rank of captain. There are in addition, 3 dentists and 2 assistant dentists, 1 senior apothecary with major's rank, 2 first-class apothecaries with captain's rank, and 32 apothecaries ranking with sub-lieutenants, 1 veterinary inspector with the rank of captain, 1 first-class veterinary surgeon, 6 second-class and 16 veterinary surgeons, ranking with 1st lieutenants, lieutenants, and sub-lieutenants respectively. In addition there are 8 first-class and 35 second-class hospital orderlies.

The spiritual welfare of the Army is looked after by 1 vicar-general with the rank of colonel and 16 chaplains with the rank of captain. For gymnastics and fencing there are 2 professors, 40 instructors, and 27 assistants. The military music consists of: 1 musical inspector, 18 bandmasters, 16 assistant bandmasters, 70 first class, 100 second class, 136 third class musicians, and 427 pupils. Cyclists and keepers of archives are formed into one company consisting of 10 officers, 50 non-commissioned officers, and 25 volunteers. In addition to officers serving with the troops, there are also 6 lieut.-colonels and 30 majors on the active list, 10 lieut.-colonels and 9 majors still in the service, and 3 lieut.-colonels, 2 majors, 3 captains, 4 first lieutenants, 4 lieutenants, and 5 sub-lieutenants, who have retired from the service, who are in various employments.—*Militär Wochenblatt.*

BOLIVIA.—*The Army.*—The military forces of the South American Republic of Bolivia consist of the Regular Army and the National Guard. By the laws of the 6th April, 1875, and of the 31st January, 1880, universal service was already introduced into the country. Every Bolivian is liable for military service between the ages of 21 and 40. From the age of 21 to that of 25 years he belongs to the Regular Army, in which he spends 2 years with the colours. From thence he passes into the Ordinary Reserve, in which he remains till the age of 30. During the remaining 10 years he serves in the Special Reserve. Priests, those unfit for service, criminals, etc., are not required to serve. The following are released after serving for 6 months :—Only sons and sole supports of widows, etc.; sons of those who have fallen in war; young men who are candidates for State educational establishments, or those who have received a certificate of education. Those who are exempted from service, with the exception of criminals, pay a fine of 5 bolivianos (1 boliviano = 1s. 9s. in English money) half-yearly for the 2 years, which they should have spent with the colours. Those who are released after 6 months' military service pay the same sum for the remaining period of service, viz., for 18 months.

The country of the Republic is divided into 9 military districts, viz. : La Paz, Beni, Cochabamba, Oruro, Potosi, Santa Cruz, Chuquisaca, Tarija, and Litoral. There is, in addition, a special military administration in the southern portion of the country in the territory of Colonia. In the principal town of each district there is a major as Chief of the Departmental General Staff, who is under the orders of the General Commanding. The Regular Army consists of 5 infantry battalions, mountain artillery, and 1 cavalry regiment. In addition, in every district there are some small commands, and a few small garrisons at the different frontier stations of the country. The strength of the units is determined every year by the National Congress. The *personnel* of the Ministry, an arms and an inspection group, the corps of officers, the general administration, the military law court, and the Board on fitness for the Army belong to the Army Administration. The General Staff consists of a Chief of the General Staff of the Army, 3 colonels and detachment commanders, 3 majors, 3 European officers, 2 captains, and 2 first-lieutenants. Under the General Staff are the military academy, the commissariat, the military college and higher school.

Infantry battalions consist, on an average, of 1 colonel, 1 lieut.-colonel, 1 major, 6 captains, 4 first-lieutenants, 5 lieutenants, 10 sub-lieutenants, 72 non-commissioned officers, 10 bandsmen, 2 drummers, and 220 men, exclusive of the 3rd Battalion, which is only 150 strong. In addition to the above complement, a surgeon and a bandmaster must be added. The artillery regiment consists of 1 colonel, 2 lieut.-colonels, 1 major, 5 captains, 4 first-lieutenants, 6 lieutenants, 6 sub-lieutenants, 1 surgeon, 1 bandmaster, 39 non-commissioned officers, and 184 men. The "Abaroa" cavalry regiment consists of 1 colonel, 2 lieut.-colonels, 1 major, 7 captains, 5 first-lieutenants, 6 lieutenants, 10 sub-lieutenants, 1 surgeon, 1 staff trumpeter, 74 non-commissioned officers, and 160 men. The Commissariat has 1 colonel, 3 lieut.-colonels, 3 majors, 5 captains, 2 first-lieutenants, 8 lieutenants, 2 sub-lieutenants, 14 non-commissioned officers, and 59 men. The soldiers' schools have a *personnel* of 2 staff officers, 10 sub-lieutenants, 30 non-commissioned officers, and 90 men; the Military College one of 1 lieut.-colonel, 2 majors, 2 captains, 2 surgeons, 1 sub-lieutenant, and 150 men.

The strength of the various commands in the districts vary, according to the size of the latter, from 20 to 80 men; the detachments are com-

manded sometimes by staff officers and captains, and sometimes by first lieutenants and lieutenants. They are quartered in Tarija, Santa Cruz, Trindade, Porto Suarez, Uyani, Mapiri, and Tupisa. The small garrisons in Caiza, Creveaux, and Murillo, consisting of about 20 men each, are commanded by lieutenants.

According to the *Sinopsis Estadistica y Geographica de la Republica de Bolivia*, from which this account is principally taken, the total strength of the Regular Army is 8 colonels, 14 lieut.-colonels, 19 majors, 55 captains, 41 first-lieutenants, 49 lieutenants, 88 sub-lieutenants, 9 surgeons, 7 bandmasters, 562 non-commissioned officers, 174 bandsmen of various ranks, 10 drummers, and 1,896 men—altogether 2,932 of all ranks.

For the service of the National Guard, Bolivia is divided into 5 military areas, viz. : the Northern, the Central, the Southern, the Eastern, and the North-Western. The first zone includes the La Paz district, the second those of Cochabamba and Oruro, the third those of Chuquisaca, Potosi, and Tarija, the fourth the Santa Cruz district, and the fifth that of Beni and the colonial territory. The depôt troops form part of the Regular Army, on mobilisation the latter are increased by the Reserve, which is itself increased by the Territorial Guard. The National Defence Force, exclusive of officers, consists of 2,560 men, the depôt troops of 30,000, the Reserve of 40,000, and the Territorial Guard of 15,000 men; altogether, in round numbers, of 87,560 men. The Army is armed with the Bolivian rifle, model 98, 7-mm. calibre. In the parks there are a number of Mauser, Remington, old types of Mannlicher, machine guns, mountain and field guns.—*Précis* from *Militär Wochenblatt*.

GREECE.—*Reorganisation of the Army and the Armament.*—The Greek Chamber of Deputies has adopted a new military scheme elaborated by the Heir Apparent, who is Commander-in-Chief of the Army. According to this scheme the period of military service will be for 12 years, 2 of which will be spent with the colours. The contingent up to the present has been fixed at 11,000 men, of whom only 6,000 were actually enrolled. This number has now been increased to 15,000 men, which, taking wastage into account, brings up the peace strength to about 28,000 men and the war effective from 120,000 to 130,000 men.

The military forces are in peace time divided into 3 divisions, in time of war into 6, each consisting of: 2 infantry brigades, 2 battalions of *evzonoi*, or chasseurs, 1 artillery regiment, 1 cavalry regiment, 1 engineer battalion, 1 transport company, 1 field hospital, 1 ammunition park, with commissariat, etc.

The infantry, in peace time, will consist of: 12 regiments of 3 battalions each, the 3rd being a battalion-cadre; these regiments are increased to 24 in war time; 6 battalions of *evzonoi* in peace and 12 in war time. The artillery will consist in peace time of 3 field artillery regiments of 8 batteries of 6 guns; in war each infantry division will receive a regiment of 4 batteries; in addition, in peace, as in war time, the Hellenic Army will possess 6 mountain batteries and a heavy artillery brigade-division of 3 batteries. The cavalry will consist of 3 regiments of 4 field squadrons and 2 squadron-cadres, and the latter will, in war time, form 6 divisional squadrons. The technical troops will consist, in peace time, of 3 battalions, and in time of war of 6. The transport will consist in peace of 2 companies, and in war time of 6.

The War Department has also in contemplation a reform of armament. It is proposed to replace the Gras 11-mm. rifle by a new repeating rifle,

and to introduce 8-cm. Krupp field guns. The models under consideration are, as regards rifles, the Krag-Jörgensen, the Mauser, and the Mannlicher, and, as regards guns, those of the Krupp, Ehrhardt, Skoda, Schneider, and Vickers systems. The reorganisation should be completed in two years from 1905.—*Revue du Cercle Militaire.*

JAPAN. — *Equipment and Food of the Soldier.* — Miss McCaul was recently commissioned by Her Majesty the Queen to go to Japan and inquire into the working of the Japanese Red Cross Society. She brought back with her the complete outfit of the Japanese Imperial Guard, together with samples of food supplied to the soldier on active service. These articles are now, through the kindness of Miss McCaul, on view in the museum of the Royal United Service Institution, and the following description of them is taken from the *British Medical Journal* :—

Summer Kit.—In the neat blue parade uniform, jacket or tunic, plain flat brass buttons are used, but in the working kit buttons are done away with as far as possible, fastenings being in nearly all instances carried out by means of flat hooks and eyes. The summer jacket and trousers are of khaki drill; the jacket is perfectly plain, and there are no buttons on any of the garments. A strip of white linen is issued to wind round the neck as a collar inside the tunic. The forage cap which goes with this uniform is a marvel of lightness. It has a detachable linen cover to be used in summer, from which hangs a linen screen to protect the neck. This screen being made in three parts—a centre and two sides—allows the air to pass freely. For all uniforms the trousers are made like riding breeches, in that they end above the ankle, where they are made to fit tight to the limb, being fastened by tapes instead of buttons. Putties or gaiters must, of course, be worn with these. The ordinary great-coat is of thick woollen cloth with bone buttons. It has a hood which can be drawn over the head. The free edges of the front of this, as well as of the winter garment, instead of being cut straight, slope outwards below the waist, making the skirt of the coat lap over more completely below; it is thus prevented from gaping in walking, and the legs and knees are protected from rain. The front of the skirt can be buttoned back to allow free movement of the lower limbs for marching in dry weather. A mosquito-net "helmet," or head-covering, issued to the Japanese soldier is made of green netting, stretched on two circles of cane, so as to make a long drum with one end knocked out, into which the head is passed. The two rings of cane are kept apart by a wire spring, which allows the drum to be flattened and buttoned down for carriage.

Winter Kit.—The winter tunic and trousers are made plain, like the khaki suit, but are of good woollen cloth. The "cold-proof" winter overcoat is made of thick woollen cloth, it has a large collar covered with fur, which is, of course, inside when the collar is raised. From the middle of the edge of this collar a cotton cap or hood can be pulled out so as to cover the head, and over this can be worn the ample detached woollen "cold-proof" hood. Hanging by cords from the neck are large gloves or mittens—one division for all the fingers and one for the thumb; they can thus be thrown off, when the hand is required for firing or any other purpose, without being lost. A sheepskin waistcoat with the wool outside is also issued for severe weather. It fastens at one side. The underclothing consists of a cotton shirt and drawers for summer and a thick knitted woollen jersey, or sweater, and pants for winter. The ribbed woollen stockings are made

without heels, and warm toe-caps are issued in the coldest weather to wear over the stockings to prevent frost bite. These toe-caps are made of a lambs' wool material like very thick lint, the soft surface being inside. A roll of fine striped flannel of very good quality, and about a yard and a half long, is issued to be wound round the abdomen, and takes the place of a cholera belt.

Boots.—In general appearance they resemble the boot issued to the British soldier, but on close inspection they are seen to be far superior. The leather of the uppers is good and reasonably soft; the sole is thinner than that of our Army boot, and is thinned off at the waist, making the boot more flexible in marching. The flat of the sole is studded with iron hobnails, and the toe and heel have brass plates. The boots weigh 3 lbs., as against the 4 lbs. of our soldiers' boots. For the temporary use of men with sore feet the soft native shoe with grass sole, such as is used by the "rickshaw" men and the people generally in Japan, is served out.

Knapsack, Haversack, and Valise.—The knapsack is of leather with the hair outside, its shape being maintained by a wooden frame. The khaki-coloured hemp haversack is divided lengthwise to form two compartments, and resembles somewhat the haversack carried by our officers. A useful addition to the slings supporting it from the opposite shoulder is a short strap fixed in the centre of the top of the sack with a hook to fix on the waistbelt, and thus take off some of the weight from the sling. For carrying additional small articles of clothing the soldier has a long sack about 9 inches in width and 6 feet long, open at each end and stitched across at its centre, so as to make two bags. It is worn over one shoulder like a bandolier, the ends being tucked under the waistbelt at the opposite side. The water-bottle, canteen, and mess tin are of aluminium, the first two being blackened outside; the mess tin fits inside the canteen like a tray. The rice ration is carried in the small grass box shown in front of the mess tin. The copper Chinese camp kettle is a very practical contrivance. It has double sides; the water poured into the outer jacket is heated by burning charcoal in a small stove in the centre of the vessel, air being admitted by the lateral aperture near the bottom, through which also the ashes can be extracted. With this water can be boiled even in a gale, and the Japanese soldiers have realised its value in campaigning, and use it very generally.

Food.—Of the various samples of food the rice ration ready boiled, and the biscuits—consisting of wheat and rice flour, with a few grains of millet seed to prevent it from becoming too hard—are specially notable. Vegetables of various kinds—sliced potatoes, carrots, beans, sliced gourd, etc.—are thoroughly dried, thus ensuring preservation and diminished weight. Tea and salt are both in solid cakes or cubes, and various meats and fish are in hermetically sealed tins. Even fodder for the horse is prepared, like the vegetables for the men, by drying.

Stretchers.—In addition to these articles of outfit and food Miss McCaul has brought over two military stretchers, which are worth close and detailed inspection. The poles are of bamboo, and the weight of the stretcher complete (12 lbs.) compares favourably with the much heavier stretcher in use in the British Army. The supports or runners are particularly ingenious and simple. When the stretcher is folded they double on to the poles, but when it is opened their weight causes them to fall perpendicularly under the framework of the stretcher, and a loose metal ring then slides down and locks them in position. A metal frame at each end of the body of the stretcher supports a cover at a comfortable

height above the patient. Each transverse comes in two in the centre, and the cover-frames or supports are hinged in the centre for folding.

Japanese and Russian Soldiers.—The Associated Press publishes a letter dated "Headquarters Second Division, First Imperial Japanese Army, near Mo Tien Pass, 22nd July." It contains some interesting statements concerning the characteristics of the Japanese and Russian soldiers, from which we take the following :—

Several infantry battalions came up the road at a dog trot, the men's khaki tunics plastered to their backs with sweat, while they mopped their faces with towels presented by the patriotic societies of Japan, bearing blue prints of the Mikado's soldiers storming impossible blue precipices in the face of gigantic blue-bearded Russians. Most of the men looked as eager for their work as a football team trotting on the field. There were no shirkers, although some followed the rear of their companies panting painfully under their fifty pounds' weight of equipment which they all carry.

There was no confusion or disorder, and seemingly little hurry. Every officer and man and every organisation knew their business, and proceeded about it without excitement or fuss. The whole machine operated with the same smoothness that it has exhibited from the day the mobilisation began in Tokio.

A squad of wounded soldiers going to the base hospital passed. Some of their arms were in slings, others were bandaged across the face. Most of them were very pale from loss of blood and heat, but all smiled and saluted. A long procession of wounded descended the hill; some were carried on stretchers, with their guns and equipments beside them, for nothing is wasted or lost with the Japanese Army, and when the soldiers go into a fight they leave no trail of discarded blankets and haversacks. All the wounded were quiet and stoical, as usual. On boy, shot through both arms, was walking, and, as he could not salute, he stopped and bowed low to each foreign officer.

By far the most significant and interesting feature of the spectacle was the appearance and methods of the Japanese soldiers at the work towards which all the drill and equipment of soldiers is directed, and the comparison of them with the Russians. The country afforded the best possible cover for troops who knew how to avail themselves of it, and the Japanese officers and individual men appeared to have every point in the game at their command. The Japanese utilised all the cover as they advanced, while the Russian tactics of preserving close company formations sacrificed much of the natural advantages of the ground.

That stiffness and precision of the German school which some foreign officers noted in the home manœuvres, and thought might handicap the Japanese in the field were entirely abandoned. When a battalion went into action the companies worked most independently. Sections of companies found positions separately, where the country and the cover favoured them, without attempting to preserve long, straight lines, while the units displayed great initiative and dash. The rolling ground permitted them to advance by rushes effectively. After firing a few rounds they would dash ahead to another hillock, and, dropping into the grass, empty their magazines again.

Their uniforms of khaki from cap covers to leggings made them as inconspicuous as possible. Since the Pekin campaign, in the evolution of this most modern of Armies, economy of lives has come to be reckoned

with. So far has the spectacular deferred to effectiveness in uniforming that even the regimental numbers on shoulder straps are abandoned, that the enemy may find no distinguishing marks about prisoners or dead to give a clue to the identity of the organisation which opposes them. The occasional glint of an officer's sword scabbard when the sun struck it was the only guide for marksmen a few hundred yards distant. The officers yet retain their swords in the field, because at close quarters they wield them with the old fury and skill of the Samurai fighting before their clans.

How perfectly khaki fuses with an ordinary background was illustrated later in the day when the Russian battery, with an unexpected burst of energy, dropped half a dozen shells over the hill to the right of the temple. No one had noticed soldiers there until, after the dropping of the shells, it suddenly seemed to swarm with men.

Between the methods of shooting of the two armies there was as great a contrast as in other essentials. Russian firing is almost all by volleys with quite mechanical regularity. Even in the use of artillery they follow a plan of discharging one gun after another rapidly and with precision. To-day four Russian guns saluted the Japanese for an hour as a regiment of the latter was moving into position before the Russian front. The manner of it was: "One! Two! Three! Four!" again. Their infantry work is on the same order: three or four sharp volleys, and then a rest. Occasionally the Japanese use volleys, but most of the time they fire at will, giving the enemy less information of their position, and gaining the advantages of individual marksmanship. They lie like a hunter in the bush waiting for his game, and when they see it they blaze away. "Boer tactics," their officers explain.

General Nicni observed the end of the engagement from the summit of a hill close by the temple. He had dressed at his usual hour, taken a leisurely breakfast, keeping in touch with his command by a cobweb of telegraphs and telephones, and only when he learned that the Russians had begun to retreat, and the business of the day was practically decided, had he started on an unhurried ride to the scene. His brigade general, Okasawa, managed affairs on the spot, and the superior gave his subordinate a free hand. Japanese officers explain that it is not necessary for the generals to go on the firing line and supervise the manœuvres in person, because they have confidence that every under officer knows and is competent to do his part in the work. General Kuroki, whose headquarters were two hours' ride away, passed the morning with his chief of staff, General Fuji, and Prince Kuni, sitting on the bank of a tiny mountain brook, placidly fishing.—*U.S. Army and Navy Journal.*

Russia. — *Protection of Trans-Siberian Railway.* — The protection of this railway is organised as follows:—

The line is divided into three sections, viz.:—

1. Tcheliabinsk-Manchuria.
2. Manchuria-Kharbin.
3. Kharbin-Eastern and Southern extremity of the line.

On the 1st section are echelonned the independent Reserve battalions or the Militia troops of Siberia or of the Viceroyalty,[1] as well as European Reserve regiments. Sections 2 and 3 are occupied by frontier guards of

[1] There are 14 independent Reserve battalions in Siberia and the Viceroyalty.

the Trans-Amur District,[1] attached for the protection of the East Chinese Railway, and placed under the command of General Tchitchagov. These latter sections have been subordinated to the authority of the General Commanding the Manchurian Army, by virtue of an order from the Imperial Viceroy in the Far East, dated the 14th May, 1904. The Trans-Amur frontier guards, which consist of 55 dismounted and 55 mounted sotnias, form 4 brigades, the first of which guards the western portion of the line, the second the central (Kharbin district), the third the eastern, and the fourth the southern. Each brigade consists of 2 Regular and 1 Reserve units, composed of the three arms. The artillery of these brigades was at first formed of 20 mountain batteries which have, however, since been transformed into horse mountain batteries. Blockhouses to hold 10 men are built every 5 kilometres along the East Chinese Railway, which is also constantly patrolled by cavalry: each sotnia operates on either side of the railway in an area 60 kilometres long and 60 wide. All culverts, bridges, viaducts, etc., are guarded by detachments of all three arms at the most important of them. This protection and that furnished by boats told off to explore watercourses leading up to the railway bridges appears to have hitherto sufficed to frustrate the attempts of Chunchuses and Japanese of the nature of those that took place at the beginning of the war against the Sungari and Nonni bridges, as well as against the bridge on the Volga, near Syzran Station.

In Manchuria the Chinese authorities, as well as the native population, are compelled to assist in guarding the railway, and a Viceregal decree was laid down that the population within a radius of 25 kilometres of the spot where any attempt on the railway has been committed would be held responsible, and that they would be severely dealt with by the Commander of the Manchurian Army.

Regulations Regarding War Correspondents with the Russian Army and in Garrisons in the Far East.—These regulations, put in force in April, 1904, consist of the following sixteen paragraphs:—

1. Foreigners cannot be allowed, unless they are introduced by their Governments to the Russian Minister for Foreign Affairs.

2. Russian subjects corresponding for journals, gazettes, or telegraphic agencies, should be in possession of certificates vouching for their respectability.

3. Unreliable persons or those under police surveillance will not be allowed.

4. In addition, each correspondent must engage in writing:—

a. Not to communicate intelligence of military preparations, the effectives, positions and movements of troops, the intentions and plans of commanders of troops, nor, in general, any secret matters. *b*. Not to insert in their correspondence criticisms on the dispositions or acts of the military commanders, but to confine themselves to a veracious statement of facts. *c*. Not to communicate uncontrolled intelligence that is capable of causing public alarm. *d*. To accurately carry out the regulations of the chief military authorities, which will be transmitted to them by the officer in charge of correspondents and of the supervision of military censorship.

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[1] The Russian territory is divided, as regards frontier guards, into 8 districts: 5 in Russia in Europe, 1 in the Caucasus, 1 Trans-Caspian, and 1 called Trans-Amur.

5. The infraction of the above regulations, the non-observance of the orders of the military authorities, presumption, or want of tact will entail a warning in matters of small importance, and in serious cases exclusion from the theatre of war, unless the act be one coming under the penal code.

6. The restrictions laid down in paras. 4 and 5 apply in full force to operations, movements and work of the Fleet; it is further forbidden to all correspondents, without exception, to penetrate into naval arsenals, docks, workshops, and other establishments, as well as the boarding of all ships' boats in the ports and roadsteads of Port Arthur and Vladivostok. Correspondents will undertake not to ask for any exception to these regulations from admirals or port commandants.

7. On their arrival on the theatre of operations, correspondents must present themselves at the Headquarters and show their papers, as well as an official photograph of themselves, after which they will be given a permit to remain with the troops in a selected area.

8. On leaving the Headquarters correspondents will proceed to the staff selected, who will give them their further instructions. The correspondent is responsible for his servants.

9. On his arrival at the unit, the correspondent should introduce himself to its chief. Should the latter consider that the presence of the correspondent is undesirable, the latter must go away immediately.

10. In the event of a correspondent desiring to be appointed to stay in a garrison, the previous consent of the commander of that place must be obtained.

11. Correspondents must always carry with them, and show on demand to all military authorities, their permits and official photograph, as well as the permission to keep a horse, a cart, and servants.

12. Correspondents must wear a distinctive badge on the left arm.

13. Special officers will be in charge of correspondents and of the censorship.

14. Correspondents will receive their instructions from the military authorities, to whom they must submit their correspondence to be censured, avoiding, at the same time, all inconvenience to the superior authorities. To obtain information they must address themselves to the person directly in charge of them.

15. Correspondence is authorised under the form of telegrams, articles, notes, and accounts. Despatches in cypher are not allowed. The censorship is carried out by special boards at Headquarters and by the staffs of the Manchurian Army, the Amur Military District, the territorial staffs, those of Kharbin, Sakhalien Island, the nine Siberian rifle divisions, the town of Inkeou, and the garrisons of Port Arthur and Vladivostok.

16. Correspondents must send to the field staff of the Viceroy two specimens of gazettes and journals containing their correspondence.

On the 20th June last the Viceroy in the Far East completed the above-mentioned regulations with the following supplementary provisions:—

1. As regards their stay with the troops, the foreign and Russian war correspondents must submit entirely to all exigencies of the military command, conformably to those laid down in para. 4, section *d*, of the regulations regarding war correspondents; they have not consequently the right to leave of their own accord, without the permission of the military authorities, the units with which they may be, and still more the theatre of operations or the area to which they were appointed by the Viceregal Headquarters.

2. Should a war correspondent have incurred expulsion from the theatre of war, he must at once submit to the injunctions of the military

authorities, and especially to the ones of those who gave him his permit. Correspondents expelled from the theatre of war and those who leave voluntarily, with permission of the military authorities, must adhere rigidly to the itinerary given them individually by the military authorities; they can never go directly to their country, but only to Russia; foreigners are directed to their nearest Consulate in Russia. Expulsion must be carried out at the cost of correspondents, without any attendant expenditure to the Treasury; should the person expelled be without resources the military authorities will not be responsible for any difficulties he may meet with on his journey.

3. The rules mentioned in paras. 1 and 2 of the present supplement apply equally to persons who may arrive on the theatre of war with a view of obtaining the privileges of war correspondents.

4. The military authorities assume no responsibility for any results of the non-observance of the rules laid down in paras. 1 and 2, mentioned above, as well for war correspondents as for persons coming to the theatre of war with a view to obtaining employment as such.

Reserve Formations.—It is of interest to form a precise idea as to the method of constitution of reserve troops in Russia, of which many divisions have been mobilised since the commencement of the war between Russia and Japan and sent to Manchuria, where they have taken part in the operations as field troops (of three Siberian divisions one entered into the composition of the IIIrd and the other two into that of the IVth Siberian Army Corps; four European reserve divisions from which have been formed the Vth and VIth Siberian Army Corps).

These reserve divisions always form in Russia in peace time a more or less strong nucleus; those which were sent out to the Far East were all most favourably situated in that respect. Before the war Russia had 158 reserve battalions, 48 of which had a 5th company. They were supposed to, altogether, form, on a general mobilisation, 159 regiments of 4 battalions and 20 independent battalions, that is to say, a total of 656 battalions, and these battalions are in peace time grouped in brigades of varying strength. Certain of these brigades have 4 regiments of 2, others having 4 battalions each (battalions as a rule having 5 companies); 4 battalions only are not brigaded.

The most favourable case for a good mobilisation is that of 4 regiments of 2 battalions. In this case each regiment of 2 battalions on a peace strength mobilises a regiment of 4 battalions on a war footing. The peace strength of a reserve regiment of this type varying from 900 to 1,000 men, and the war effective of the regiment of 4 battalions being thus in round numbers 4,000 men, it necessarily follows that the units mobilised would consist of three-quarters of reservists. This is the case of the divisions employed in the theatre of war, of which mention was made above.

In the case of brigades of 4 battalions of 5 companies, each battalion forms, with its first 4 companies, a reserve regiment of 4 battalions, into which men of the Regular Army are drafted in a proportion of one-eighth to one-tenth of the effective; the 4 regiments thus formed constitute a reserve division of a far less homogeneous type than the preceding one. Finally, the fifth companies of these reserve battalions serve in their turn as a nucleus for the formation of a 4-battalion regiment formed almost exclusively of reservists; the 4 regiments thus formed also constitute a reserve division.

The reserve battalions not brigaded in peace time are transformed on mobilisation into regiments, the number of whose battalions is variable. Finally, a 5th battalion meant to serve as a depôt is raised for each of the regiments mobilised, of whatever type it may be. These depôt battalions are, in all cases, composed exclusively of Reservists. It will thus be seen that the reserve divisions sent by Russia to the theatre of war, whilst inferior to the Regular troops on account of the strong proportion of Reservists they contain, and especially on account of the large number of officers from other corps which they must receive to place them on a war footing, are nevertheless very different to the reserve units provided in France on mobilisation; about a quarter of the men are already with the colours in peace time; the proportion of professional officers is the same as with the Regular troops; their regimental staffs already exist. Finally, the commander of the division is the general officer who commands the brigade in peace, and who is, consequently, personally acquainted with a large number of his officers, by whom, too, he is himself known.—*La France Militaire* and *Revue Militaire des Armées Etrangères.*

Switzerland.—*Equine Resources.*—The equine resources of Switzerland, which increased but little between 1877 and 1890, has considerably developed since that period, at least as regards the number of its produce. The number of animals on the census, which was 80,000 in 1877, amounted to 83,000 in 1890, and to 103,500 in 1900, not including State depôt horses, horses of less than 4, and mules of less than 3 years of age. Of this number, 11,000 saddle and 53,000 draft horses were found fit for war service, whilst there were 18,500 less valuable horses, but which were capable of service in case of necessity. The Swiss Government, which appears only to require 35,000 horses to mobilise its Army, seems, then, to have as many horses at its disposal, numerically, as is necessary. In order to encourage national horse-breeding, and to favour the creation and propagation, in the country itself, of a serviceable type of charger, the Government has formed a stud farm at Avenches, near Morat, the organisation of which is not yet complete, but which will include a depôt of stallions, one of foals meant for breeding purposes, and one of young horses bought in Switzerland. At the present time the stallions' depôt consists of 100 stallions, by whom 5,000 mares were served in 1902; the depôt of foal stallions is meant to ensure the national recruiting of stallions; finally, the depôt of young horses consists of animals of from 2 to 3 years' purchased in Switzerland, and of foals bought for breeding purposes which have not given proof of being good sires; these animals are sold when 4 years old either to individuals or to the remount depôt, which bought 30 of them in 1902 at an average price of £46. The *personnel* of the depôt consists of a director, a veterinary surgeon, and a bookkeeper, officials nominated by the Federal Council; of a master of horse, a steward, and a certain number of assistants nominated by the department on the proposition of the director, and, finally, a certain number of stud grooms, guards, blacksmiths and saddlers, engaged by the director, according to the needs of the establishment.—*Revue Militaire des Armées Etrangères.*

United States.—*Grand Manœuvres.*—The manœuvres which took place in the United States, in the neighbourhood of Manasses, Virginia, from the 4th to the 10th September last were characterised by the participation in them of a considerable number of units of the National Guard. Slowly but surely the War Department pursues the object it laid down after the

Spanish-American War; viz., the development of the instruction of the Militia by means of an increasingly frequent contact with the Regular troops. This year the latter formed the minority of the forces assembled in Virginia; the Regulars consisted, as a matter of fact, of 33 infantry companies, 4 batteries, 16 squadrons, and 3 engineer companies, whilst the National Guard was represented by 7 squadrons, 3 batteries, 28 infantry regiments, and 1 detached company, sent by 17 different States. In other words, out of the 25,000 men assembled at Manasses, only about 5,000 belonged to the Regular Army.

The troops were divided into 2 strong divisions opposed to one another under the chief direction of Major-General Corbin. According to custom, dating from the experience of the Civil War, a certain proportion of Regulars was distributed to each brigade. Viewed as a whole, the manœuvres give ris to the following observations :—

1. The inexperience of the railway companies in the service of military trains, whereby delay and unnecessary fatigue were caused the troops. In this regard no appreciable progress has been made since the famous obstructions at Port Tampa, at the time of the war of 1898.

2. Inadequacy of the scouting service. Patrols and reconnoitring parties showed a too great tendency to get into actual contact, and to become engaged in action, thereby deviating from their principal *rôle*.

3. Too voluminous manœuvre programmes. The efforts required from the troops, especially from the little-trained National Guards, were too severe to enable them to derive all the desirable profit from them. Military critics consequently agree generally in asking that grand manœuvres should be longer but less frequent; that the tour of manœuvres for each division should only come every fourth year, the intervening years being passed in local exercises in the camps of the different States, thus serving as a preparation for united operations or grand manœuvres.

4. Progress made in fire discipline, although there is still room for improvement in this respect as regards the Militia.

5. A too great tendency to scattering the guns in the different batteries. This may perhaps be due to the influence of the new theories that obtained in Germany and France on the adoption of new Q.F. *matériel*.

6. General discipline comparatively good. At the same time, the "Militia spirit" has not yet quite disappeared. White soldiers have been seen refusing to salute coloured officers with the approval of their chiefs. A company from Alabama was also seen to quit the battle-field without orders and return to camp because there had been no rations issued since the previous evening. It is, too, a fact that they do not understand the management of their rations, and it seems without doubt that discipline of the stomach is just as necessary as fire discipline before the enemy.

Material Position of the Soldier.—The legal arrangements regarding the recruiting of the American Army, the conditions laid down, and of the advantages derived by the soldier, which were emphasised by a circular of the 17th May last, may be summarised as follows :—

1. The American soldier enlists for 3 years. For a first engagement he should be between the ages of 21 and 35 years, and must fulfil the conditions as regards good constitution, height, weight, and chest measurement, which are laid down in great detail in the circular. The minimum height and weight are as follows :—

For infantry and coast artillery.—Minimum height, 5 feet 4 inches; weight between 120 and 190 lbs. Cavalry and field artillery.—Minimum height, 5 feet 4 inches; weight not to exceed 165 lbs. Married men cannot be accepted without the authority of their future commanding officer.

2. The monthly pay is as follows :—

	Dollars.
Private (infantry, cavalry, artillery, engineers, and signalling corps)	13
Private (hospital corps)	16
1st Class Private (engineers, signalling corps)	17
Corporal (infantry, cavalry, artillery)	15
Corporal (engineers, hospital corps, signalling corps)	20
Sergeant (infantry, cavalry, artillery)	18
Sergeant (engineers, signalling corps, ordnance, commissariat, quartermaster-sergeant, electrician)	34
1st Sergeant (infantry, cavalry, artillery)	25
Sergeant-Major (engineers)	36
1st Class Sergeant (hospital corps)	45
Master Electrician	75

In addition to his high monthly pay the American soldier receives the following :—

	Dollars.
After 2 years' service	1
,, 3 ,, ,,	2
,, 4 ,, ,,	3
,, 5 ,, ,,	5
,, 10 ,, ,,	6
,, 15 ,, ,,	7
,, 20 ,, ,,	8
,, 25 ,, ,,	9
,, 30 ,, ,,	10

No bounty, in addition to the high pay mentioned above, is given on re-engagement. In addition to his pay the soldier is entitled to rations, clothing, equipment, lodging, and medical attendance. When quartered outside the territory of the United States he receives an addition of 20 per cent. to his pay. The system of a soldier's clothing fund is still in force in the United States, and this fund is very liberally endowed. Every careful man effects considerable saving through its means, which is given to him on discharge.

3. After 20 years' service with the colours, or if discharged earlier on account of wounds or sickness contracted in the Service, a soldier may be admitted to the Soldiers' Home, at Washington, which provides a most comfortable existence for old soldiers. After 30 years' service the American soldier is entitled to a pension amounting to three-quarters of his Regular Army pay, increased by a monthly allowance of 9 dollars 50 cents in lieu of rations and clothing. Service outside the territory of the Union counts double for pension.

4. The State charges itself with keeping the men's savings entrusted to it, and gives an interest of 4 per cent. on them. These deposits can only be forfeited in case of desertion.

5. An American soldier can break his engagements, in peace time, on payment of 120 dollars after one, and of 80 dollars after 2 years' service. The high pay of soldiers of the Federal Army is consequent on the dearness

of manual labour in the United States. In spite of the pecuniary sacrifices made by the Government to recruit its Army, and the facilities given to soldiers to break their engagements, desertions are numerous, and in 1903 amounted to more than 8 per cent. of the effectives.—*La France Militaire* and *Revue Militaire des Armées Etrangères.*

WAR NOTES.

Events on the Sha-ho remain practically the same as described in last month's JOURNAL. The Russian difficulties have, however, been very greatly enhanced by the increasing activity of the Chunchuses, who, under Japanese leadership, are constantly harassing the Russian line of communications, and have been reported to have recently frequently cut the railway line between Kharbin and Mukden. On the 25th October, Admiral Alexeieff was recalled to St. Petersburg and relieved of his duties as Commander-in-Chief, and General Kuropatkin was appointed by the Tsar Commander-in-Chief of the Land and Sea Forces in the Far East in his place.

The Berlin *Militär Wochenblatt* writes thus with regard to recent events at Port Arthur:—"Since the first days of October last the Japanese assaults on Port Arthur have been directed almost exclusively against the north and north-east front. It must be assumed that on this front are the Sang-shu, Erh-lung, Han-lung, and Ki-kwan forts that have been so frequently mentioned. On the other hand, Fort Kuropatkin, which was captured by the Japanese towards the end of September last, appears to be identical with the water-supply redoubt. The Japanese strengthened their artillery opposite the north front, and began, at the same time, to push forward their trenches towards the Russian positions. Up to the 25th October the Japanese appear to have made but little progress, although the excellent effect of their artillery fire against the fortress, and especially against the fleet lying in the harbour, cannot be doubted.

"On the 25th October an increased bombardment prepared the way for a fresh Japanese assault, which lasted from the 26th October to the 2nd November. In this attack the Japanese captured the whole of the Russian advanced works on the north and north-east front. They succeeded in bringing up their lines of infantry almost up to the Russian chief line of defence, but failed to capture any of their permanent works. Russian reports state that the Japanese suffered very heavy losses, and at all events the latter appear to have made no further assaults for a month."

On the 27th November, however, the Japanese commenced a series of fierce assaults on the north and north-east front, as well as on 203 Metre Hill, which lies about four miles to north-west of Port Arthur in the direction of Pigeon Bay. The fighting appears to have been of the most desperate nature, and the struggle lasted virtually for five days. On the 30th November, after being reinforced, the Japanese carried the whole of 203 Metre Hill. On the same night and the following day the Russians made six successive attempts to recapture the hill, but were repulsed on each occasion, with very heavy losses on both sides. The

Japanese attach great importance to the capture of this hill, as it commands the adjoining forts and the harbour of Port Arthur. With regard to their attacks on the north and north-east front, the Japanese Headquarters report that they captured the crests and glacis of the adjoining works to the eastward of Sung-shu-shan.

Under the present circumstances the following communication, addressed by Captain Charles T. Boyd, of the 10th Cavalry, United States Army, to the *U. S. Army and Navy Journal*, and dated from Miao-Tao Islands, on the 12th September last, is of especial interest:—

The forts about the city were formerly numbered in order, beginning at Golden Hill and going around in a direction opposite to that of the motion of the hands of a watch. In order to confuse the spies, who are quite numerous, the numbers have been frequently changed. So, one cannot follow the operations from the Russian reports. In order to follow the operations from the Japanese reports, and these are probably the only ones we shall have, one must learn the names of the forts as used by the Japanese, and these names are the Chinese names of the hills on which the forts are situated.

The forts are divided into two general divisions, the sea front and the land front. There are ten forts in the first division and nine in the second. Taken together, the forts form one main line, which encircles the city and harbour at a distance of about two sea miles. Near the entrance to the harbour, however, this line is drawn in so that the forts there are not more than two-thirds of a mile from the railway station. The station may be considered as the central point. There are in this line of forts at least twenty-six 28-cm., twenty-two 27-cm., fifteen 24-cm., twenty-two 15-cm., and forty-four 12-cm. guns. In addition to these there are a great number of Q.F. and field guns. The large guns are protected by armour plate, against which the Japanese projectiles seem to have little effect.

Considering only the heavy guns, beginning with the sea front at Golden Hill and going east, there is first Huan-chin-shan Fort in three batteries, one above the other, with a total of twenty-three guns. The battery on the very top of the hill is the strongest of any about Port Arthur. East of this is Mo-chu-chiao Fort of two batteries, one above the other, with four guns. A little farther on is San-tien-woi Fort with nine guns, and last is Lao-li-tsoi Fort of two batteries, the higher having seven guns. The number in the lower is not known.

Beginning again, but across the entrance from Golden Hill, and going south-east from the Tiger's Tail on the island, there are these forts: Yih-yuan, with six guns; Wan-tsu-yin, with five guns; Chin-kwan-shan, of two batteries with twelve guns; Man-too-shan, of two batteries with seven guns; and Chang-too-shan, with five guns. There is another fort in the sea front called Lao-tieh-shan; it is armed with naval guns, has an elevation of over a thousand feet, and is six miles distant from Port Arthur in a south-west direction.

No one of the forts in the sea front, except Lao-tieh-shan, can be taken from the land side until the land front has been reduced.

Taking the land front, and beginning near Lao-li-tsoi Fort two sea miles directly east of the railway station, there is first Pai-yin-shan Fort of three batteries in line, with a total of fifteen guns. North-west of this, just beyond the Dalny road, is Chi-kan-shan, of two batteries in line, with six guns and several Q.F. One or both of these batteries were taken by the Japanese, but had to be abandoned owing to the flanking fire turned on them. To the north-west of these is Erh-lung-shan, of one main

battery with six guns, and four advanced batteries with Q.F. and field guns. One of the latter was also taken, but had to be abandoned. Directly north of the railway station, joining Erh-lung-shan, are two forts overlooking the railway, facing both north and west. These are Shan-shu-shan, of two batteries, one of which has four guns—the number in the other is not known—and Han-lung-shan, the number of guns in which is also not known. Two sea miles north-west of the railway station are the two forts, Yih-tsu-shan, of two batteries, and An-dzu-shan, of three batteries, the two forts having a total of twenty guns.

Two and a half sea miles west and a little south of the railway station are the two forts, Yan-pih-shan and Ya-hoo-tsoi, the two having a total of ten guns. These forts, together with Yih-tsu-shan, have also a number of field guns not included in the totals.

In addition to the nine forts mentioned, there are two field gun forts on the mainland near Chang-too-shan Fort of the sea front, and two covering Pigeon Bay, six miles west of Port Arthur. Another field gun fort is near the lighthouse on the shore of Lao-tieh-shan Promontory. Some of these field gun forts have been taken by the Japanese, but they are unimportant.

On Pai-Yai-shan, very near the railway station, there are two interior works, in which two 12-inch guns have been recently mounted.

It may be of interest to add that the principal artillery position of the Japanese is on Wolf Mountain. This mountain is only a mile distant from the main battery of Erh-lung-shan, and has an elevation of 2,525 feet. Another position is on Taku-shan, a mile to the north-east of Chi-kan-shan Fort, with an elevation of 525 feet. Another position, not yet much spoken of, is Shan-o-ku-shan, less than a mile north-east of Pai-yin-shan Fort, with an elevation of 455 feet.

The weakest part of the Russian line is that part occupied by the forts, Chi-kan-shan and Erh-lung-shan. Should Port Arthur fall these will fall first.

NAVAL AND MILITARY CALENDAR.

NOVEMBER, 1904.

1st (T.) Japanese despatches regarding their attacks on Port Arthur were published.

3rd (Th.) H.M.S. "Tribune" arrived at Plymouth from West Indies.

4th (F.) 2nd Bn. Worcestershire Regiment arrived in Ceylon from South Africa in the "Avoca."

6th (S.) 2nd Bn. Royal West Kent Regiment left Ceylon for Hong-Kong in the "Avoca."

" " Magazine at I-tzu-shan, Port Arthur was blown up by a Japanese shell, as well as a Russian land mine; the latter resulted in 700 Russians being killed and wounded.

7th (M.) 1st Bn. Highland Light Infantry arrived in India from Egypt in the "Sicilia."

8th (T.) Launch of first-class armoured cruiser "Black Prince" from Thames Shipbuilding and Ironworks Company, Blackwall.
" " H.M. the King approved of the issue of a long service and good conduct medal for Militia and Yeomanry.
10th (Th.) 16th Lancers arrived at Southampton from South Africa in the "Dunera."
12th (Sat.) The French Chamber of Deputies ratified the Anglo-French Convention.
13th (S.) 1st Bn. Cheshire Regiment arrived at Southampton from India in the "Soudan."
14th (M.) H.M.S. "Ringarooma" arrived at Plymouth from Australia.
" " H.M.S. "Northampton" paid off at Chatham.
15th (T.) H.M.S. "Hawke" commissioned at Chatham as training-ship for boys.
" " General André, the French War Minister, resigned.
16th (W.) H.M.S. "Hogue" left Spithead for China.
" " 3rd Bn. Rifle Brigade left India for Aden in the "Sicilia."
" " An Arbitration Treaty was signed between Great Britain and Portugal.
17th (Th.) H.M.S. "St. George" arrived at Portsmouth.
" " The Japanese commenced a forward movement against Mukden.
18th (F.) H.M.S. "Aurora" paid off at Devonport.
" " H.M.S. "Sutlej" paid off at Portsmouth.
" " H.M.S. "Eclipse" paid off at Portsmouth.
19th (Sat.) H.M.S. "Sutlej" commissioned at Portsmouth for China.
20th (S.) 3rd Bn. Rifle Brigade arrived in Aden from India in the "Sicilia."
21st (M.) H.M.S. "Irresistible" arrived at Sheerness from Mediterranean.
" " 1st Bn. the Buffs left Aden for England in the "Sicilia."
22nd (T.) H.M.S. "Brilliant" arrived at Spithead from Atlantic Division.
" " Launch of new scout "Attentive" from the Elswick Yard, Newcastle-on-Tyne.
23rd (W.) 2nd Bn. Royal Fusiliers left England for India in the "Soudan."
25th (F.) H.M.S. "Pioneer" arrived at Plymouth from Mediterranean.
26th (Sat.) British Mission left Peshawar, India, for Cabul.
27th (S.) H.M.S. "Pyramus" arrived at Sheerness from Mediterranean.
" " H.M.S. "Tartar" from South Atlantic station arrived at Plymouth.
28th (M.) H.M.S. "Indefatigable" arrived at Spithead from West Indies.
" " The German Army increased by 10,000 men on a peace-footing.
29th (T.) H.M.S. "Sutlej" left Portsmouth for China.
" " H.M.S. "Pearl" paid off at Simon's Bay.
30th (W.) H.M.S. "Irresistible" paid off at Chatham.
" " H.M.S. "Theseus" paid off at Devonport.
" " H.M.S. "Endymion" paid off at Chatham.
" " The Japanese captured 203-Metre Hill, to the N.W. of Port Arthur, after great losses on both sides.

FOREIGN PERIODICALS.

NAVAL.

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FRANCE.—*Revue Maritime.* Paris: September, 1904.—"Gas and Petrol Motors." "Hydrographical Service Publications."

Le Yacht. Paris: 5th November, 1904.—"The Entry of Naval Cadets." "Yachting Notes." "The Amelioration of the Lot of English Merchant Seamen." "The English Submarines at the Manœuvres." 12th November.—"The General Congress of Automobile Navigation." "Yachting Notes." "The New English Battle-ship 'King Edward VII.'" "The Naval Action of the 10th August, and the Injuries to the 'Tsarevitch.'" 19th November.—"The Regulations for Engineer Officers." "Yachting Notes." "The Naval Actions of the 10th August, and the Injuries to the 'Tsarevitch'" (*concluded*). 26th November.—"The Congress of Nautical Societies." "Yachting Notes." "The New Russian Estafette-Cruisers." "The New German Battle-ship 'Elsass.'"

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La Marine Française. Paris: November, 1904.—"The Necessary Discipline and the Crisis in the Dockyards." "The Mastery of the Sea."

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ITALY.—*Rivista Marittima.* Rome: November, 1904.—"The Institute of International Law." "On a Co-efficient of Merit for Projectiles." "The Size of the Blades of Screws." "The First Voyage Round the World Completed by an Italian Navigator." "Italian Emigration and Political Expansion." Letters to the Director:—"Firing Practice on board Ships." "Foreign Naval Notes."

PORTUGAL. — *Revista Portugueza, Colonial e Maritima.* Lisbon: October, 1904.—"The Process of Cultivation of Tobacco, as followed in the Island of Cuba." "African Proverbs" (*concluded*). "Improvement of the Province of Cape Verde by Arborisation." "Naval Notes."

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NOTICES OF BOOKS.

Saarbrück to Paris, 1870: A Strategical Sketch. By Lieut.-Colonel SISSON C. PRATT, late R.A. With ten sketches and maps. London: Swan, Sonnenschein & Co., Ltd., Paternoster Square, 1904. Price, 5s. net.

The lessons of the Russo-Japanese war can as yet be read only indistinctly; those of the Boer war are few in number, and only in very rare instances have any of them a general application; therefore, the great contest of the years 1870-1871 retains for the present, at all events, the foremost place on the roll of modern military history. It is, indeed, already apparent that the Japanese have employed and profited by the lessons of 1870, and have ignored those of 1899-1902—except as regards the use of heavy artillery. With the Japanese to-day, as with the Germans 34 years ago, any strategical object of real importance has always been considered worth fighting for, and the principle followed has been that it is better to thrust an enemy roughly from his positions than merely to induce him to evacuate them. The Germans at first wasted men by the use of obsolete formations; the Japanese have never hesitated to expend lives in order to gain their ends, but have not, so far as can at present be ascertained, often thrown them away fruitlessly. The intention, in both cases, has been the same, but the performance by the Japanese seems to have been upon the whole superior.

Lieut.-Colonel Sisson Pratt's study of 1870 is correctly described by its author as a strategical sketch—it is no more. There is to be gathered from the book a tolerable understanding of the salient points that chiefly influenced the solution of the strategical problems of that rapidly decisive

struggle, and at the same time an acquaintance is obtained with the course of the principal events which took place on and around the great battle-fields. Yet the reader when he has finished the volume will probably lay it down with a sense of having reaped something less than the entire benefit which, after a first glance at a few pages opened at random, he may have originally anticipated. This feeling will usually have been occasioned by the fact that the author has not quite satisfactorily connected the strategy that dictated the various tactical operations, nor the tactical results actually arrived at, with the strategical conditions consequently changed for the better or for the worse. Tactics have been described as the "handmaid of strategy"; but it must be borne in mind that there are good and bad handmaidens, and that even the best may sometimes be attended by bad luck—a gust of wind, a door slams, and the tray of china is knocked out of the most careful hands!

When we study military history our chief object is to learn lessons from it, and for this purpose it is not essential to commit to memory the names of the commanders nor the numbers of the regiments concerned in the various phases of the battles or combats. Thus a *précis*, especially as a foundation for more detailed study, may be of great value, provided that it explains clearly how the available means were well or ill employed towards the attainment of the end in view. Lieut.-Colonel Sisson Pratt describes well enough what actually took place, and gives the considerations by which sundry decisions were influenced, but it seems a pity that he did not bring more to notice the things that "might have been," the things that happened otherwise than as might have been expected, and the questions upon which additional evidence has been obtained since the German official account was published.

For example, von Bredow's charge was a feat of arms that exercised a great strategical influence, possibly upon the campaign as a whole, and certainly upon the immediate situation. At manœuvres, in England, at all events, von Bredow would have been put out of action as soon as an umpire could catch him. Actually, we know that he rode through battalion after battalion, and saved the day at the cost of about 50 per cent. of his strength—a price well worth paying—and conveying a great strategical lesson by proving the tactical practicability of what he did. Lieut.-Colonel Sisson Pratt dismisses this wonderful charge in a few words, and leaves in the minds of those unacquainted with the facts an impression that the French infantry, as much or more than the French cavalry, emptied the saddles of those gallant squadrons. Actually, what von Bredow had accomplished with comparatively slight loss until charged by fresh cavalry, French did and De Wet did in South Africa with practical impunity—*i.e.*, ride through the fire directed upon them by excited men. The Germans on 16th August, 1870, played with boldness and resolution for a great strategical stake, and won it, von Bredow's charge contributing to their success almost as much as the steadfast courage of the 5th and 6th Infantry Divisions.

To mention briefly, and in conclusion, one other quite different example, namely, Frossard's final counter-attack, by which the Mance ravine was swept almost clear of Germans, those who were in occupation of the St. Hubert farm alone remaining on the French side, and the effects causing a tendency to yield ground even so far to the rear as the Royal headquarters at Malmaison. What might have happened had Frossard been supported, or, better still, shown the way, by a full division of the Imperial Guard instead of by a single regiment of Voltigeurs? Surely

even in what is avowedly a "sketch" only, the latent possibilities of that counter-attack were worth discussing.

However, the book taken as a whole is undeniably useful, although, possibly, many of its readers will regret that Colonel Sisson Pratt did not see his way to carry his sketch a little further.

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